

Service Manual

PIONEER
The Art of Entertainment

• KEH-3400SDK/WG



ORDER NO.
CRT1427

CASSETTE CAR STEREO WITH FM/MW ELECTRONIC TUNER

KEH-3400SDK

WG

KEH-2400SDK

WG

KEH-2400B

EW

CASSETTE CAR STEREO WITH FM/MW/LW ELECTRONIC TUNER

KEH-3430B

EW

KEH-2430B

EW

Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double -D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- Whenever a cord assembly may be used for repairing, do not fail to employ the cord assembly designed for the related part.
Do not apply any cord assembly designed for a different part.

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SAFETY INFORMATION

WARNING!

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.

Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note: The lithium battery installation position is shown in the exploded view and the P.C. board pattern.

ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Denne advarsel er angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anvisning. Batterierne må kun udskiftes med batterier af samme type og mærke.

VARNING

Explosionsfara vid felaktigt batteri-byte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Denna varning finns på apparaten eller i bruk-sanvisningen. Följ nedanstående anvisningar vid byte av litiumbatterier. Batterierna får endast bytas ut mot litiumbatterier av samma typ och fabrikat.

1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	7.0 A
Dimensions (chassis)	180(W) × 50(H) × 141(D) mm
(front face)	188(W) × 58(H) × 16(D) mm
Weight	1.4 kg

Amplifier

Maximum power output	25 W × 2/15 W × 4 (EIAJ)
Continuous power output	11 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Tone controls (bass)	±10 dB (100 Hz)
(treble)	±10 dB (10 kHz)
Loudness contour	+8 dB (100 Hz) (volume: -30 dB)

Tape player

Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76cm/sec. (+0.14cm/sec., -0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response (KEH-3430B, KEH-3400SDK) ... Metal:	40 – 17,000 Hz (±3 dB)
(KEH-2430B, KEH-2400SDK, KEH-2400B)	40 – 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio (KEH-3430B, KEH-3400SDK) ... Metal: Dolby B NR IN:	63 dB
(IEC-A network)	
Dolby NR OUT:	55 dB (IEC-A network)
(KEH-2430B, KEH-2400SDK, KEH-2400B)	52 dB (IEC-A network)

FM tuner

Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 – 1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)


LW tuner (KEH-3430B, KEH-2430B)

Frequency range	153 – 281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

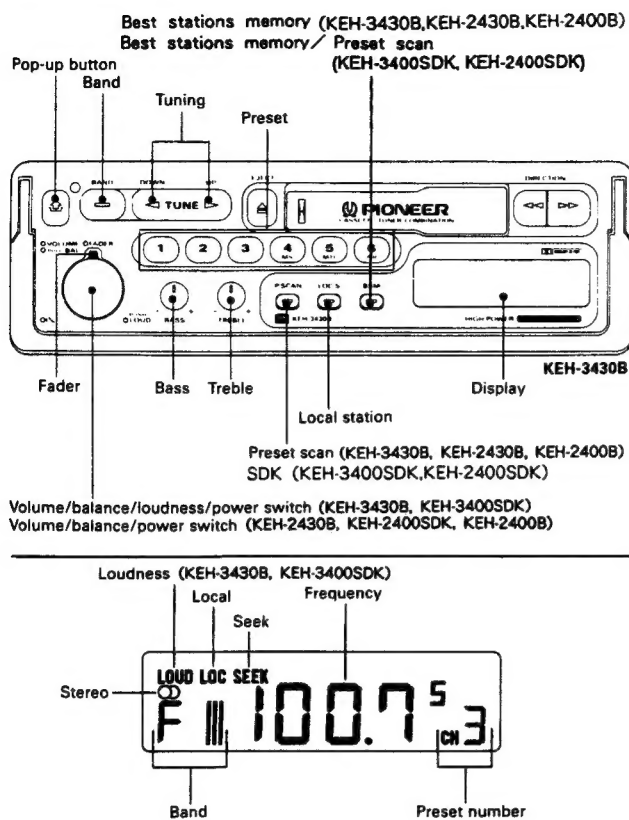
● Features

- Built-in highly sensitive "Automatic Reception Control" (ARC) for automatic control of stereo separation, muting and frequency characteristics to match the strength of the FM signal.
- The Best Stations Memory automatically memorizes the six best (strongest) stations in the six preset buttons in the order of their strength.
- Preset scan tuning for sequential recall of preset frequencies.
- Auto reverse function eliminates the need to turn the cassette over and allows uninterrupted playback.
- Built-in Dolby B NR for reduced tape hiss.
(This feature is provided for the KEH-3430B and KEH-3400SDK.)
- Music search function allows automatic playback from the beginning of the selection being played or the beginning of the next selection.
(This feature is provided for the KEH-3430B and KEH-3400SDK.)
- Choice of either 4-speaker or 2-speaker system is possible. When the 4-speaker system (15 W × 4) is used, volume of front and rear speakers can be adjusted independently, for optimum sound balance. The 2-speaker system (25 W × 2) provides more than enough power for clear, high-fidelity playback.
- The "Quick Release Mounting Bracket", facilitates mounting and dismounting of the car stereo and serves to protect the unit from theft.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

● Electronic Tuner (KEH-3400SDK, KEH-2400SDK, KEH-2400B)

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for Western Europe, Asia, the Middle and Near East, Africa, Australia and Oceania. Use in other areas may result in improper reception of AM.

2. USING THE RADIO



● Before attempting operation...

- Set the fader control to the upright position.
- 1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.
- 2. Press the band switch to select the band.
- Switching between FM and MW/LW is controlled by the band switch. Switching between LW and MW is accomplished using the tuning button. The MW band is from 531 kHz to 1,602 kHz, and the LW band is from 153 kHz to 281 kHz.
- 3. Press both ends of tuning button and the seek tuning indicator will appear on the display.
- 4. Press either the left or right side of the tuning button to tune in the desired frequency. (Pressing the right side will increase the frequency.)
- 5. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- 6. Adjust the tone.

● To enter a frequency into the preset memory...

- 7. Hold down one of the preset buttons (1-6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
- Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six MW and LW frequencies can be entered.

● Best Stations Memory Button

Automatically tunes strong frequencies and assigns them to preset buttons 1 through 6 for one-touch automatic tuning. The best stations memory function is activated by pressing this button for approximately 2 seconds. The best stations memory function is indicated by ——— flashing on the display, and this function can be canceled by pressing the band switch. The frequency display returns once the best stations memory function is complete. The frequency displayed at this time is of the strongest station assigned to preset button 1 by the best stations memory function.

- 6 best (strongest) frequencies are memorized in the 6 preset buttons in the order of their strength, the strongest one being assigned to preset button 1.
- The frequencies previously assigned to the preset buttons are retained when 6 frequencies cannot be located.
- The best stations memory is in operation while ——— is flashing on the display.

● Local Station Switch

Pressing this switch increases the seek threshold level so that only relatively strong stations can be tuned in (local indicator will illuminate on the display). Local seek threshold level can be selected among four levels for FM and two levels for MW and LW. Holding this switch down for approximately 2 seconds and then pressing the right side of the tuning button changes the display from L-1, L-2, L-3 to L-4. Pressing the left side of the tuning button changes the display from L-4, L-3, L-2 to L-1 (L-1 and L-2 for MW/LW). The bigger the number, the higher the seek threshold becomes and only relatively strong stations can be tuned in.

● Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the upright position.

A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

● Loudness Switch (KEH-3430B, KEH-3400SDK)

When playing back a tape or listening to the radio at low volume, the low tone is emphasized and more clearly heard by pressing this switch.

● Auto-Loudness (KEH-2430B, KEH-2400SDK, KEH-2400B)

When playing back a tape or listening to the radio at low volume, the low tone is automatically emphasized.

Seek Tuning

Press both ends of tuning button and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the right or left side of the tuning button. FM frequencies change in 50 kHz steps while those in the MW and LW bands change in 9 kHz steps.

Preset Scan Tuning

Pressing the preset scan button (CH indicator flashes) causes previously stored frequencies to be tuned in sequentially for eight seconds each. Press again when the desired frequency is tuned in to cancel preset scan tuning.

Preset Tuning

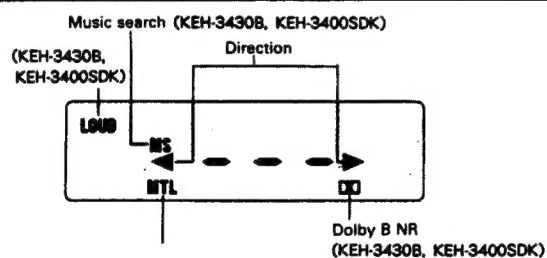
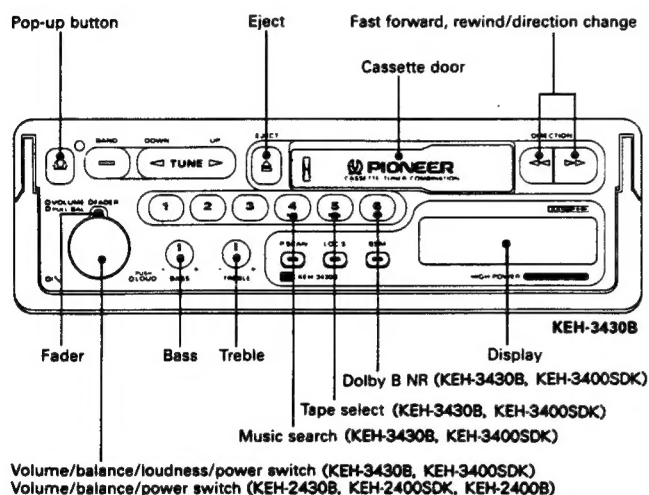
Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

Manual Tuning

When manual tuning is employed, FM frequencies change in 50 kHz steps, LW frequencies change in 1 kHz steps, and MW frequencies change in 9 kHz steps.

1. Press both ends of tuning button and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

3. USING THE TAPE DECK



● Before attempting operation...

- Set the fader control to the upright position.
- 1. Turning the power switch to the right causes power to switch ON.
- 2. Loading a cassette tape into the load slot causes playback to begin automatically.
- 3. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- 4. Adjust the tone.
- 5. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, press the eject button.

● Pop-up button

When the quickrelease handle is on the bottom, push the button to move it up slightly. Push it when you remove the unit from the dashboard.

The button works only when the handle lock is released.

- Before removing this unit from your vehicle, be sure to remove cassette tapes and make sure that radio power is switched OFF.

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- Loose tapes should be rewound with the aid of a pencil and unevenly wound tapes rewound with the use of the fast forward function.
- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.

● Fast Forward/Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

● Direction Change

Push the fast forward and rewind buttons together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

● Dolby B NR Switch (KEH-3430B, KEH-3400SDK)

Press when playing a tape recorded with Dolby NR.

● Tape Select Switch (KEH-3430B, KEH-3400SDK)

This switch is used to switch to the proper mode for the tape being used and should be depressed when using chrome or metal tapes.

Music Search (KEH-3430B, KEH-3400SDK)

● Returning to the beginning of selection A

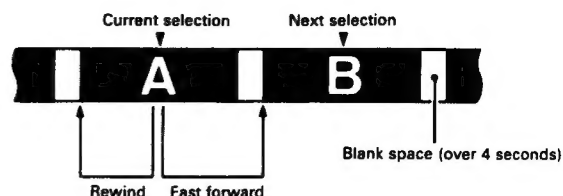
Press the music search button and then the high-speed tape transport button for the direction opposite that is shown by the direction indicator. Playback will automatically start from the beginning of selection A.

● Moving from selection A to selection B

Press the music search button and then the high-speed tape transport button that corresponds to the direction shown by the direction indicator. Playback will automatically start from the beginning of selection B.

To enable regular fast forward/rewind operations, press the music search button again to turn the function OFF. The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded "blank" portions between selections less than 4 seconds → the blank portion cannot be detected by the unit.
- Pauses in recorded conversations longer than 4 seconds → the unit reads these as blanks between selections.
- Portions recorded at very low volume for more than 4 seconds → the unit reads these as blanks between selections.



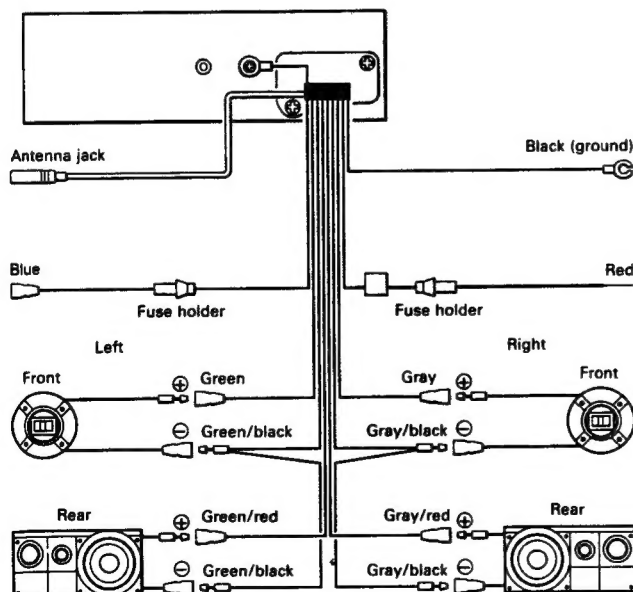
4. CONNECTIONS

Note:

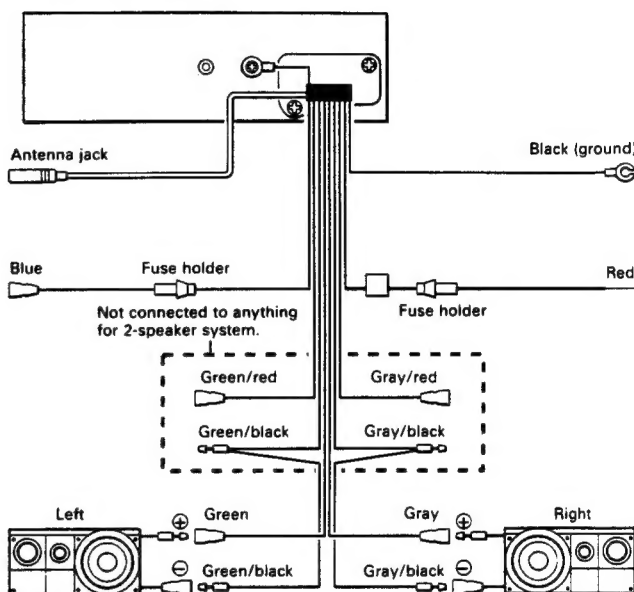
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.
- Speakers connected to this unit must be a high-power type possessing maximum input of at least 25 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.

Black (ground)	To vehicle (metal) body.
Blue	To auto-antenna power terminal (Max. 300 mA 12 V DC).
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

4-speaker system



2-speaker system



5. DISASSEMBLY

● Removing the Case

1. Insert and turn a screwdriver to remove the case.
2. Raise the case to remove.

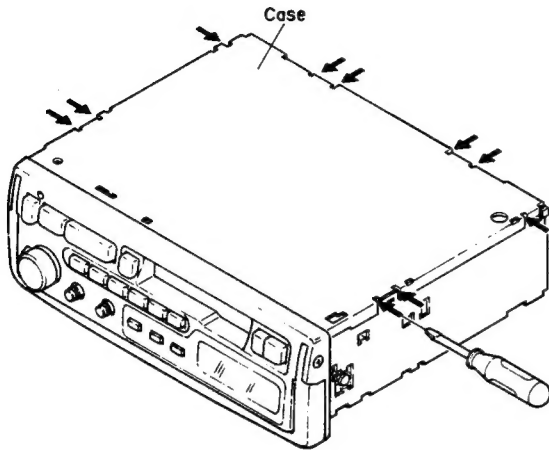


Fig. 1

● Removing the Grille Assy

1. Remove the two knobs.
2. Press the tabs at four locations, and then pull out the grille assy.

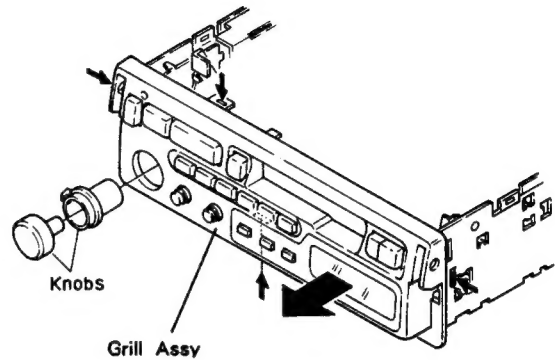


Fig. 3

● Removing the Handle

1. Remove the two screws, and then remove the handle.

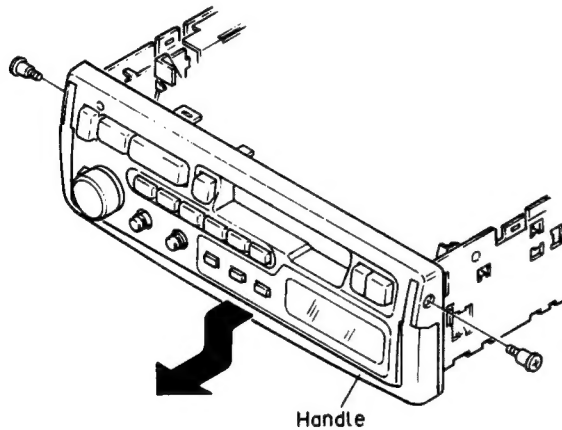


Fig. 2

● Removing the Cassette Mechanism Assy

1. Remove the insulator.
2. Disconnect the connector.
3. Remove the six screws A and two screws B.
4. Remove the cassette mechanism assy.

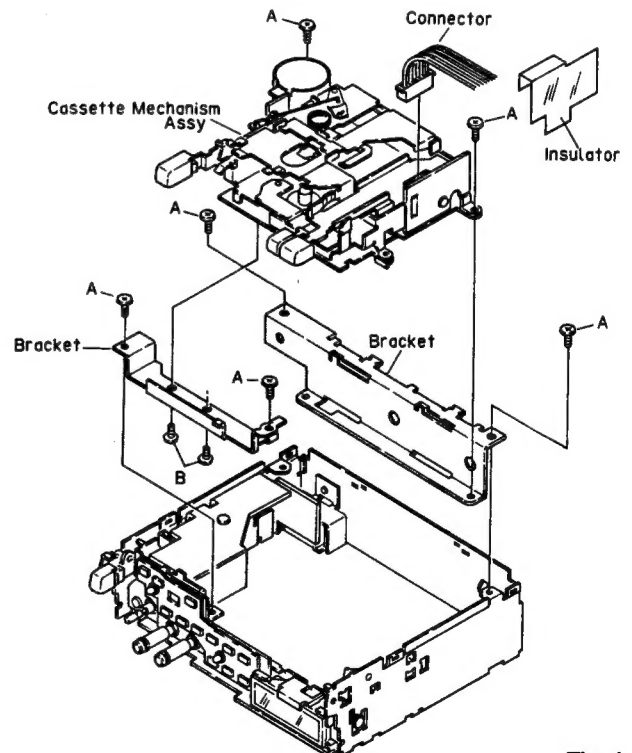


Fig. 4

● **Removing the SDK P.C.Board**
(KEH-3400SDK, KEH-2400SDK)

1. Pull out the SDK P.C.Board.

● **Removing the Dolby NR P.C.Board**
(KEH-3400SDK, KEH-3430B)

1. Pull out the Dolby NR P.C. Board.

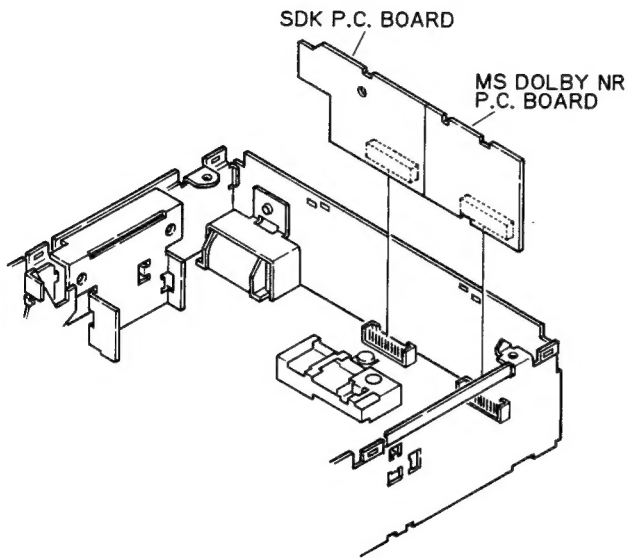


Fig. 5

● **Removing the Tuner Amp Unit**

1. Remove the four screws C.
2. Raise up on tuner amp unit to remove it from the chassis unit.

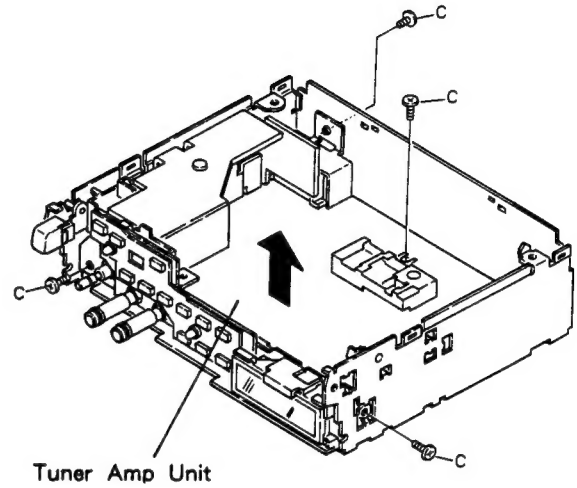


Fig. 6

6. ADJUSTMENT

● Connection Diagram

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

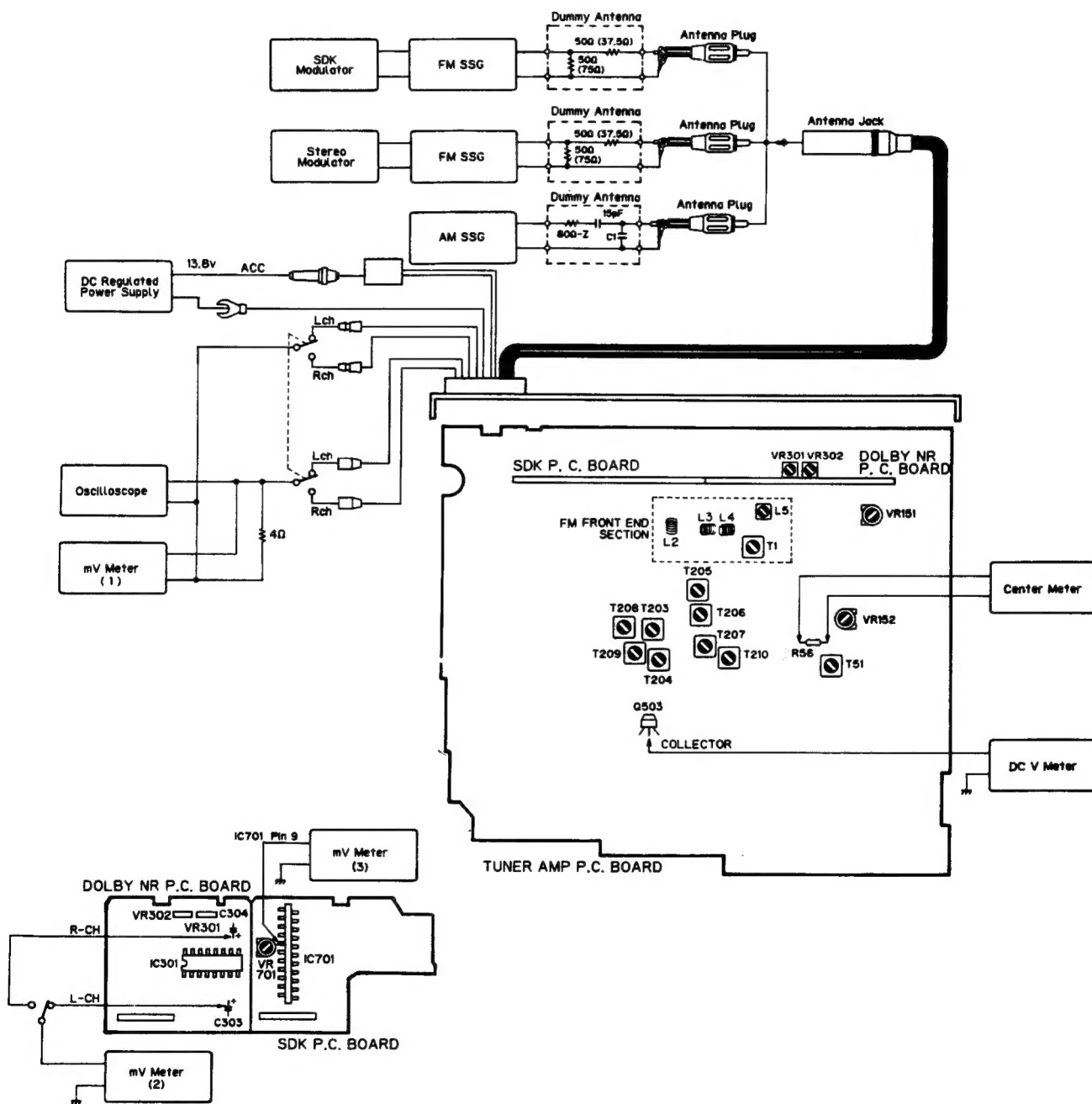


Fig. 7

DOLBY NR ADJUSTMENT
(KEH-3400SDK/WG, KEH-3430B/EW)

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR301 (Lch) VR302 (Rch)	mV Meter (2) : -6dBs±1dB (DOLBY NR Switch:OFF)

FM ADJUSTMENT ※1 Stereo MOD. : Pilot=10%
 ※2 Stereo MOD. : 1kHz, L+R=90% , Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	108.0	L5	DC V Meter: 7.0V
Track- ing	1	98.1	15	98.1	L2, L4	mV Meter (1) : Maximum
	2	98.1	15	98.1	T1	mV Meter (1) : Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pil- ot Can- cel	1	98.1※1	65	98.1	VR151	mV Meter (1) : Minimum (MPX Filter: OFF)
ARC	1	98.1※2	40	98.1	VR152	mV Meter (1) : Separation 5dB

MW ADJUSTMENT
(KEH-3400SDK/WG, KEH-2400SDK/WG, KEH-2400B/EW)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	531	T210	DC V Meter: 1.0V
Track- ing	1	603	20	603	T203, 204, 205, 206	mV Meter (1) : Maximum

MW/LW ADJUSTMENT
(KEH-3430B/EW, KEH-2430B/EW)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	531	T210	DC V Meter: 1.0V
	2	—	—	153	T207	DC V Meter: 3.3V
Track- ing	1	999	20	999	T203, 204, 205, 206	mV Meter (1) : Maximum
	2	216	20	216	T208, 209	mV Meter (1) : Maximum

SDK ADJUSTMENT ※3 : SDK MOD. : SK (57kHz)=5%
(KEH-3400SDK/WG, KEH-2400SDK/WG)

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
	1	98.1※3	65	98.1	VR701	mV Meter (3) : Maximum

7. BLOCK DIAGRAM

● KEH-3400SDK

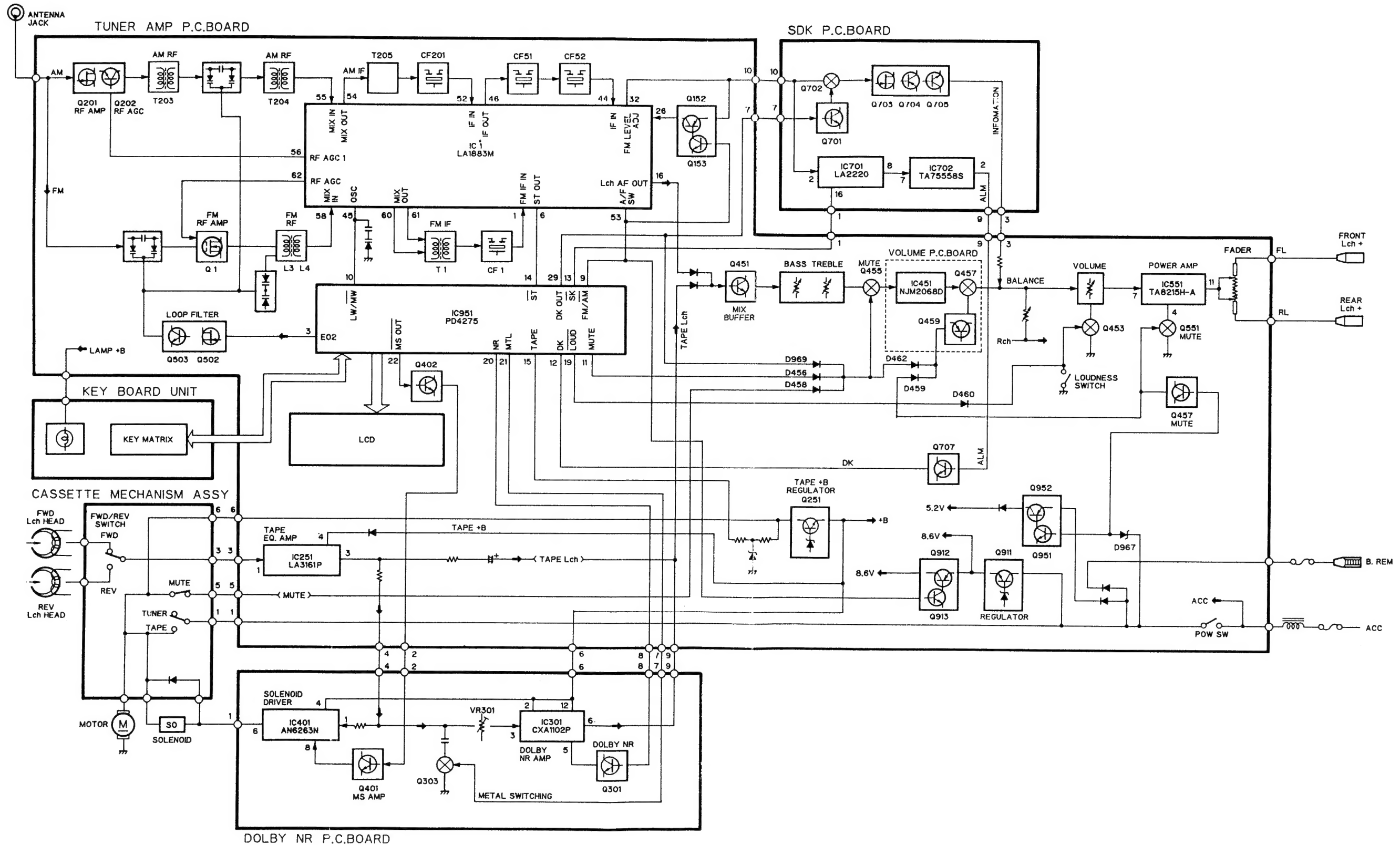
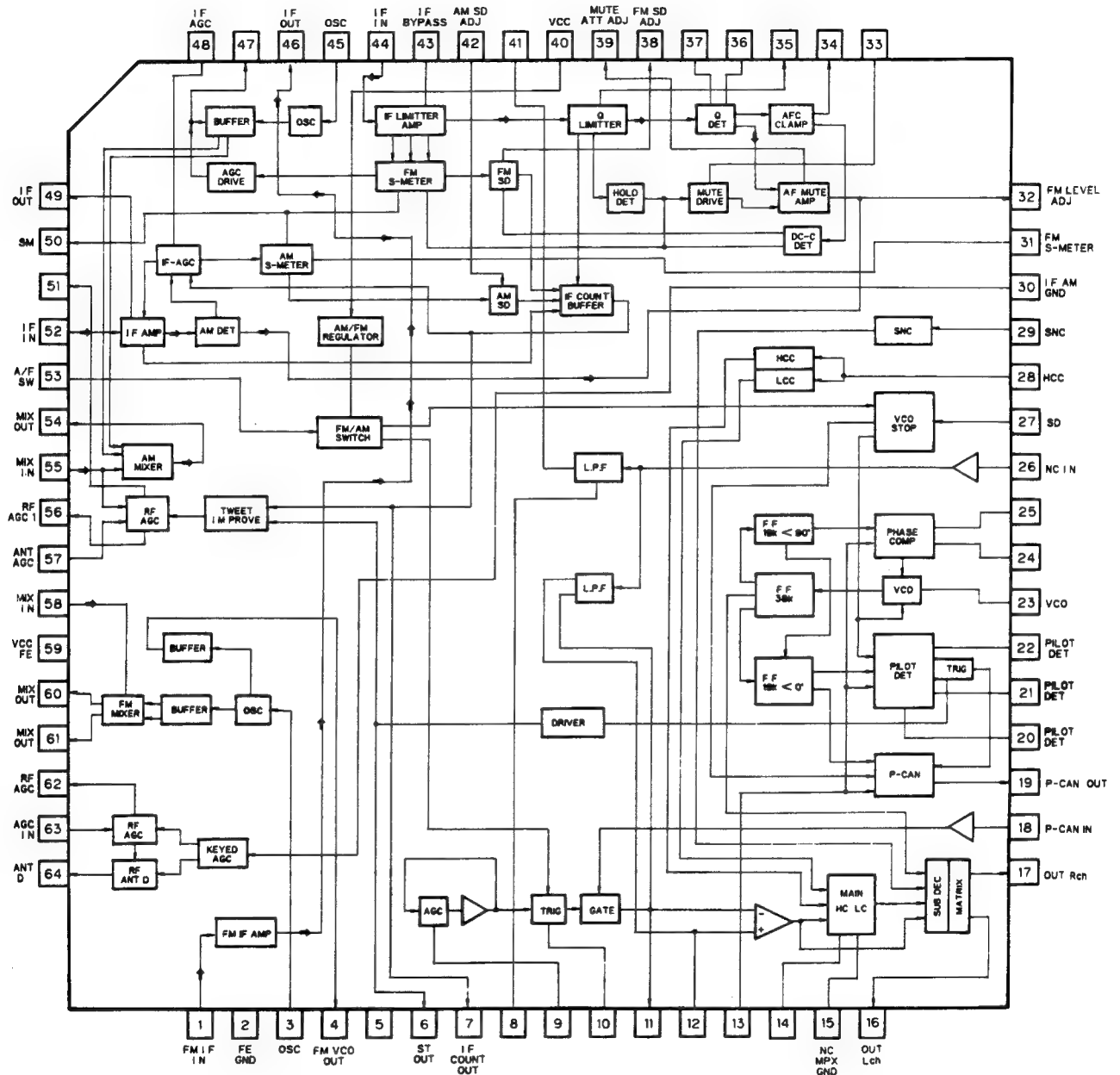


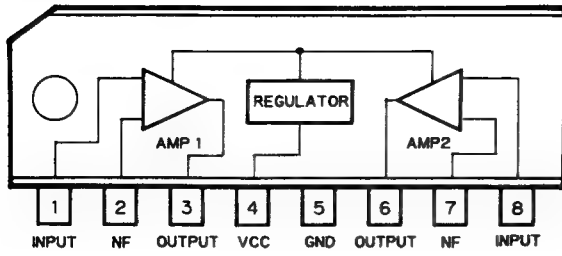
Fig. 8

● ICs

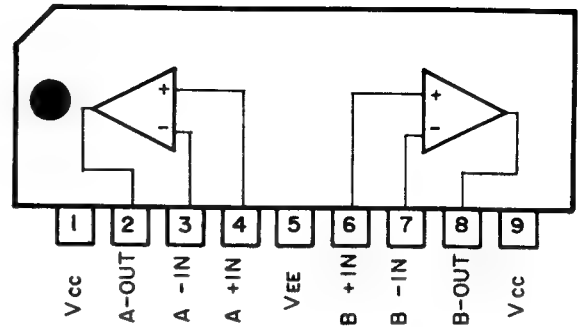
LA1883M



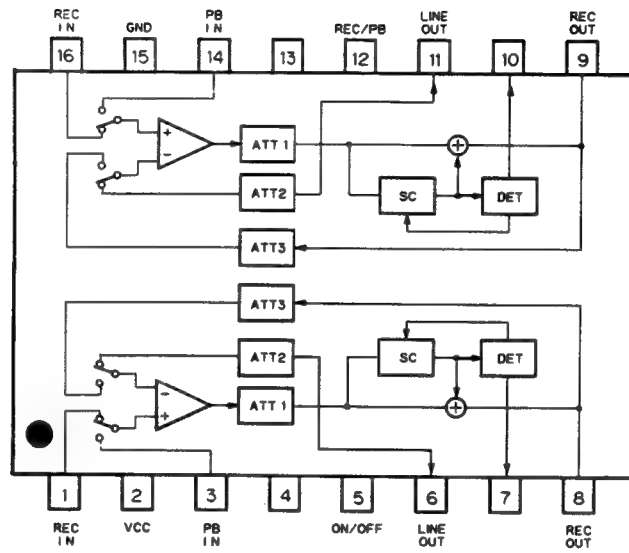
LA3161P



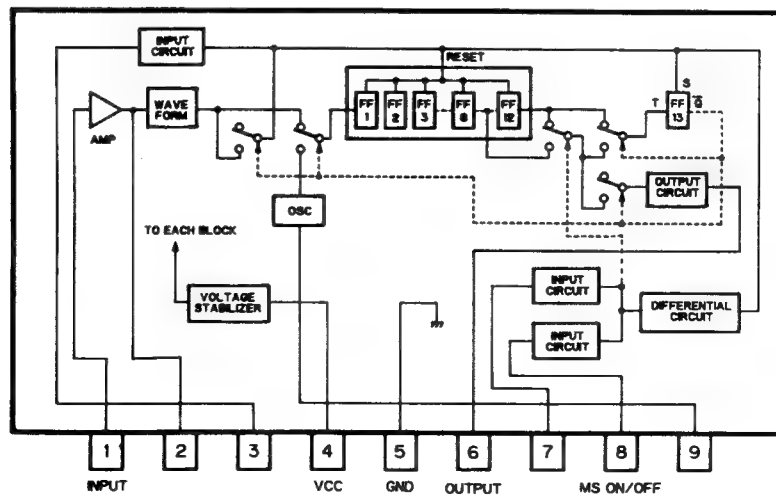
TA75558S



CXA1102P

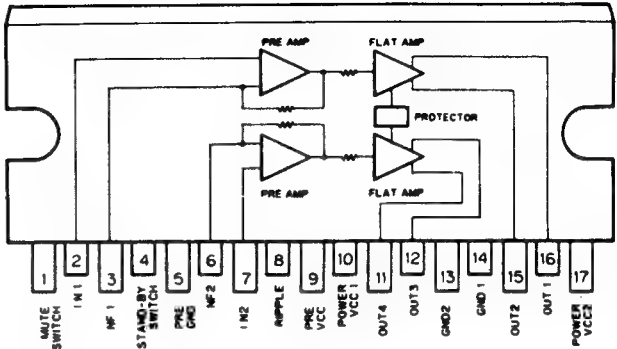
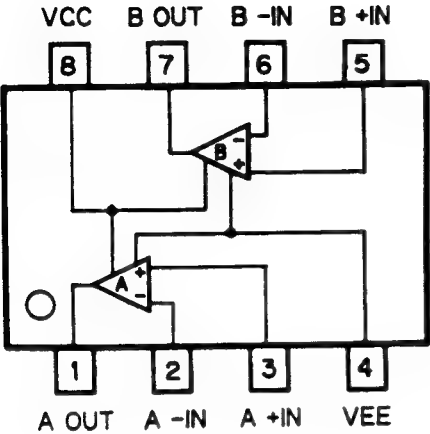


AN6263N



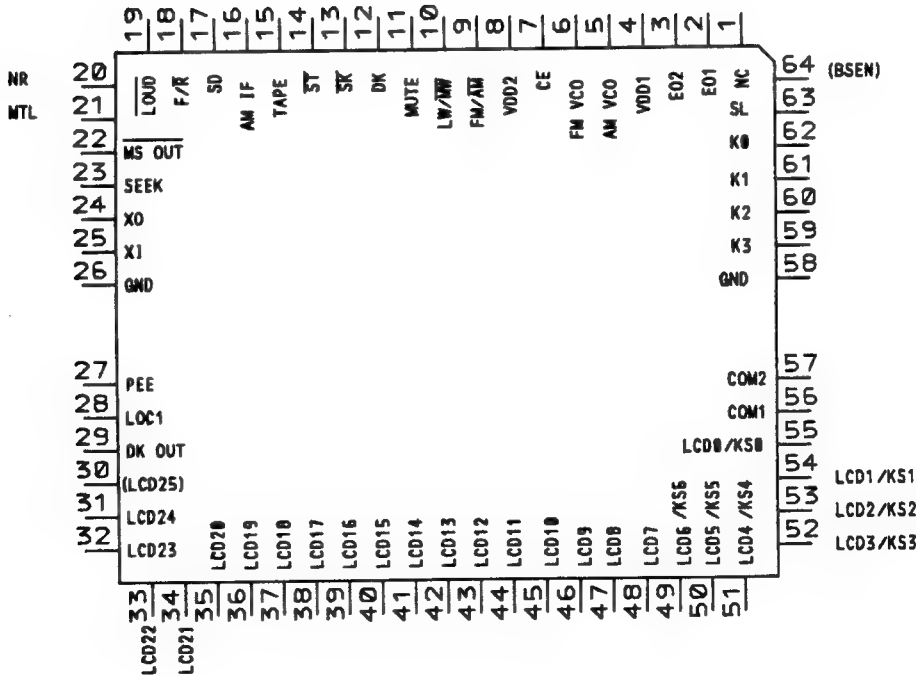
NJM2068D

TA8215H-A



*PD4275

IC's marked by * are MOS type.
Be careful in handling them because they are very
liable to be damaged by electrostatic induction.



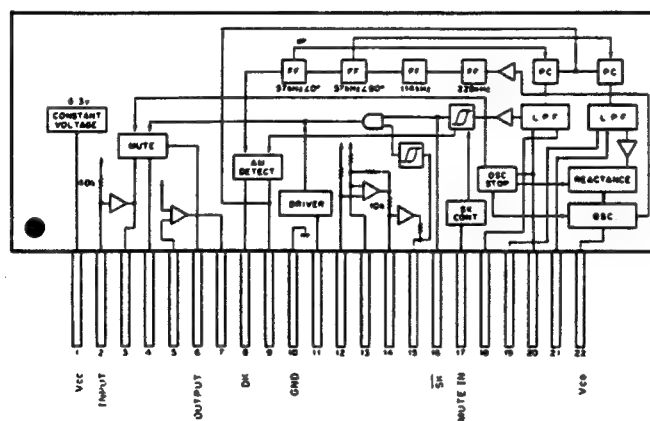
● Pin Function (PD4275)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2 3	EO1 EO2	Output	C(3)	PLL error output pins
4 8	VDD1 VDD2			Device power supply pin
5	VCOL	Input		AM local oscillator signal input pin
6	VCOH	Input		FM local oscillator signal input pin
7	CE	Input		Chip enable input pin
9	FM/AM	Output	C	FM/AM band select pin "H":FM "L":AM
10	LW	Output	C	Loop filter switching output pin "H":LW
11	MUTE	Output	C	Mute output pin "H":ON
12	DK	INPUT		SK signal input pin
13	SK	INPUT		DK signal input pin
14	ST	Input		Stereo broadcast detection signal input pin "L":Stereo indicator is displayed
15	TAPE	INPUT		Tape power ON/OFF input pin "H":ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H":During broadcast reception
18	F/REV	Input		Tape motion signal input pin "H":Forward
19	LOUD	Input		Loudness ON/OFF signal input pin "L":ON
20	NR	Output	C	Dolby NR ON/OFF output pin "H":ON
21	METAL	Output	C	Tape METAL ON/OFF output pin "L":ON
22	MSOUT	Output	C	Tape MS ON/OFF output pin "L":ON
23	SEEK	Output	C	"H" level:SEEK, BSM, BSA and PSCAN
24 25	XO XI	Output Input	C	Quartz oscillator terminal
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin "L":DX SEEK(P. SCAN) "H":LOC SEEK
29	DKOUT	Output	C	Control by DK (terminal #12) input signal "H":DK input signal is detected as 125Hz
30	NC			Not used

Pin No.	Pin Name	I/O	Output Format	Function and Operation
31 | 55	LCD24 | LCD0	Output	C	Segment signal output pins to LCD
48 | 55	KS7 | KS0	Output	C	Key matrix strobe output pins
56 57	COM1 COM2	Output	C	Common signal output pins to LCD
59 | 62	K3 | K0	Input		Key matrix return input pins
63	SL	Input		AM station level analog input pin
64	NC		C	Not used

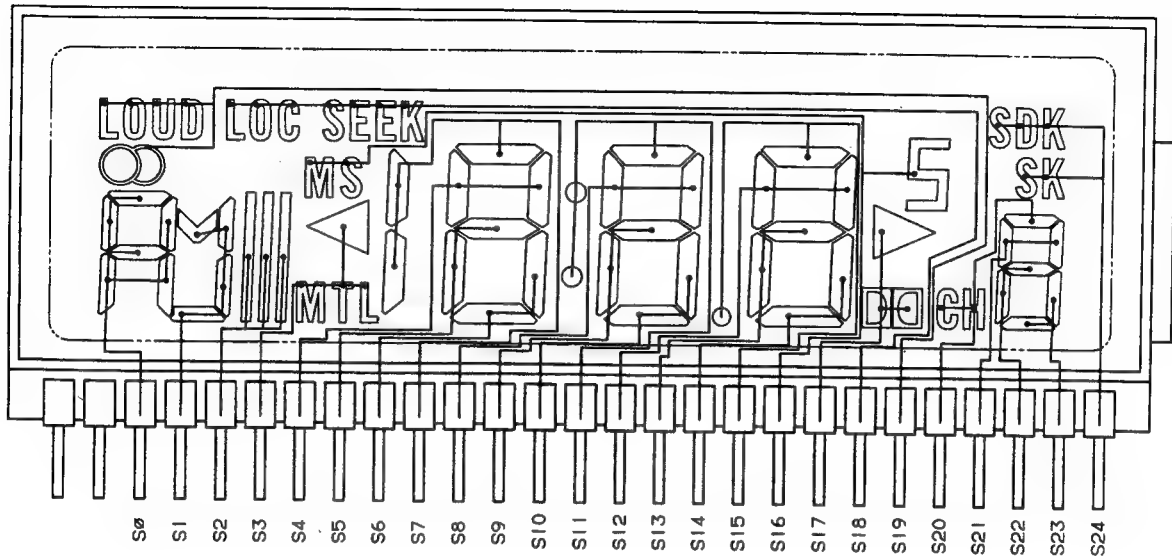
Output format	Meaning
C	C-MOS
C(3)	C-MOS (3 State)

LA2220

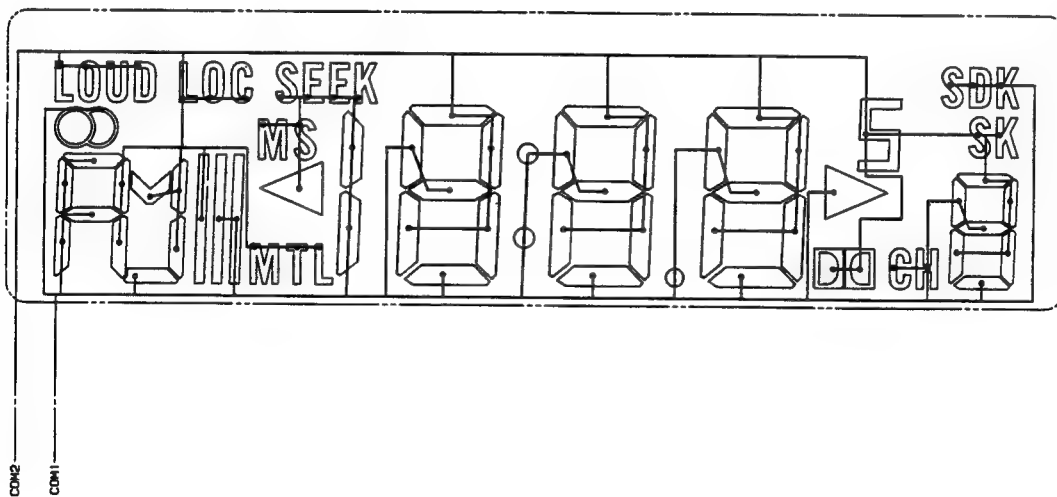


● LCD(CAW1162)

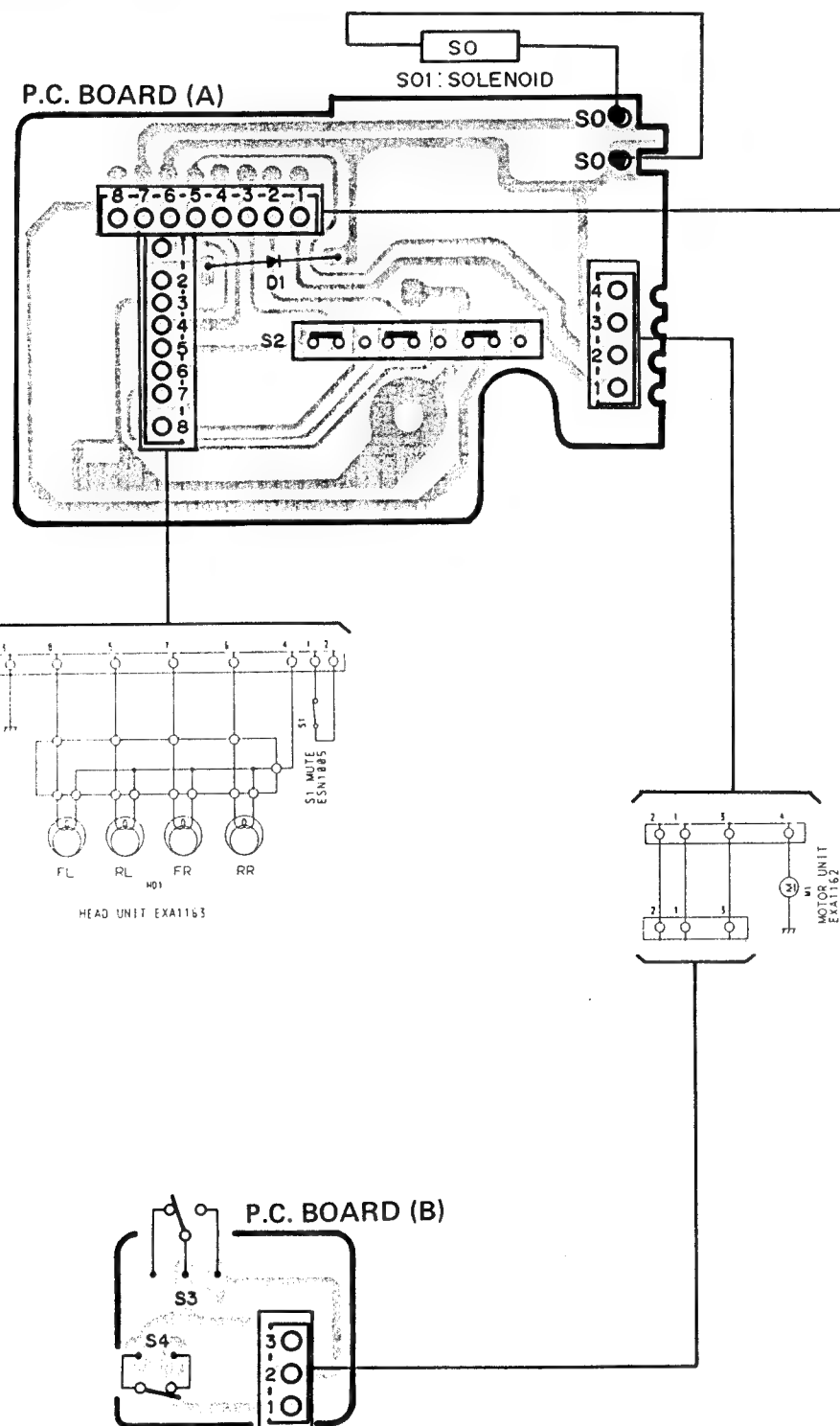
SEGMENT



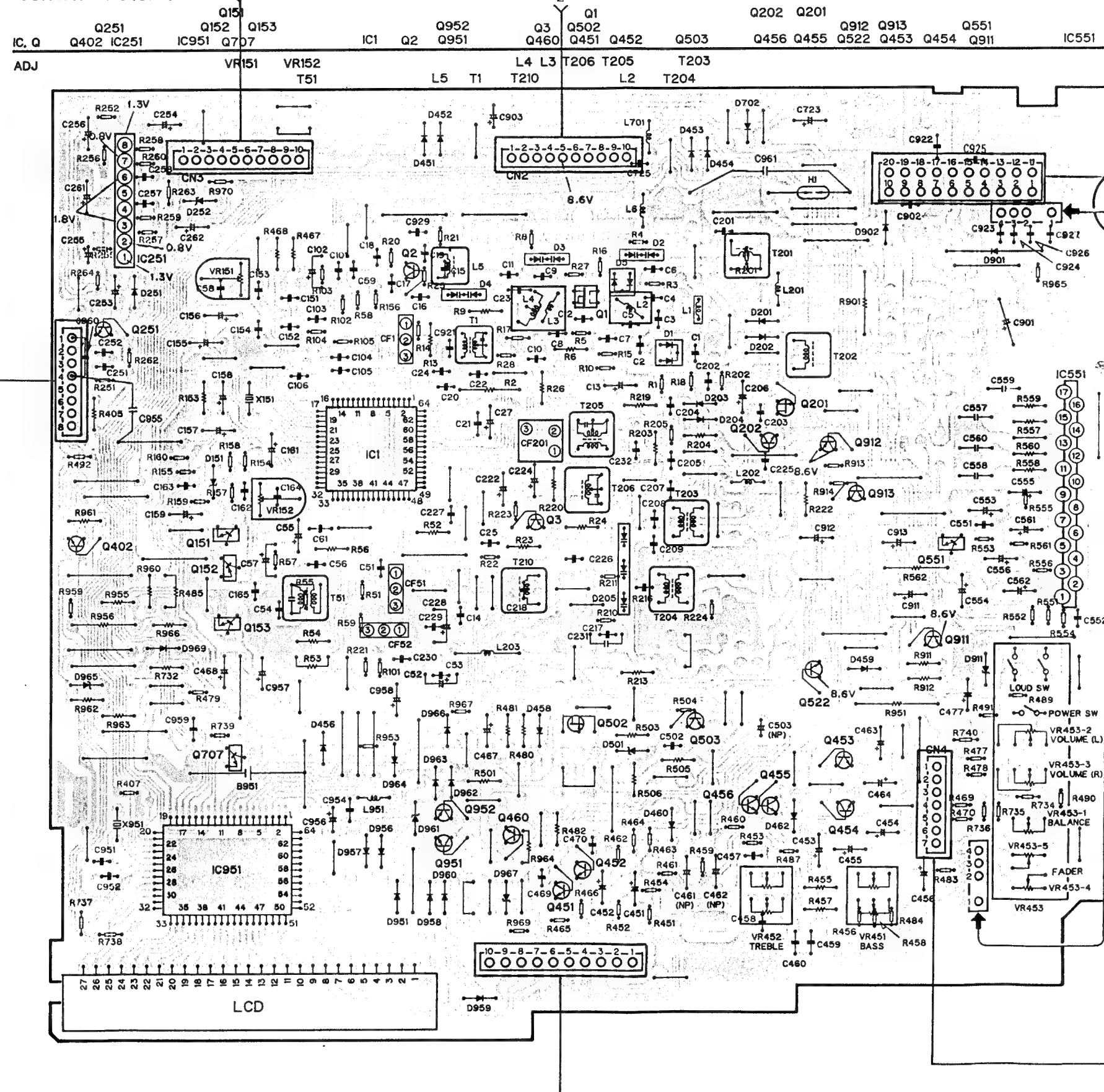
COMMON

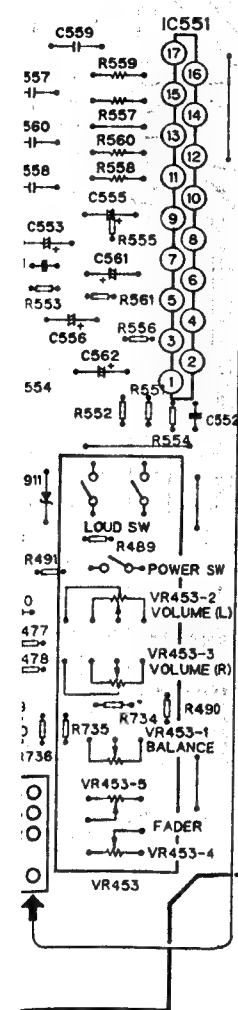


8. CONNECTION DIAGRAM (KEH-3400SDK)

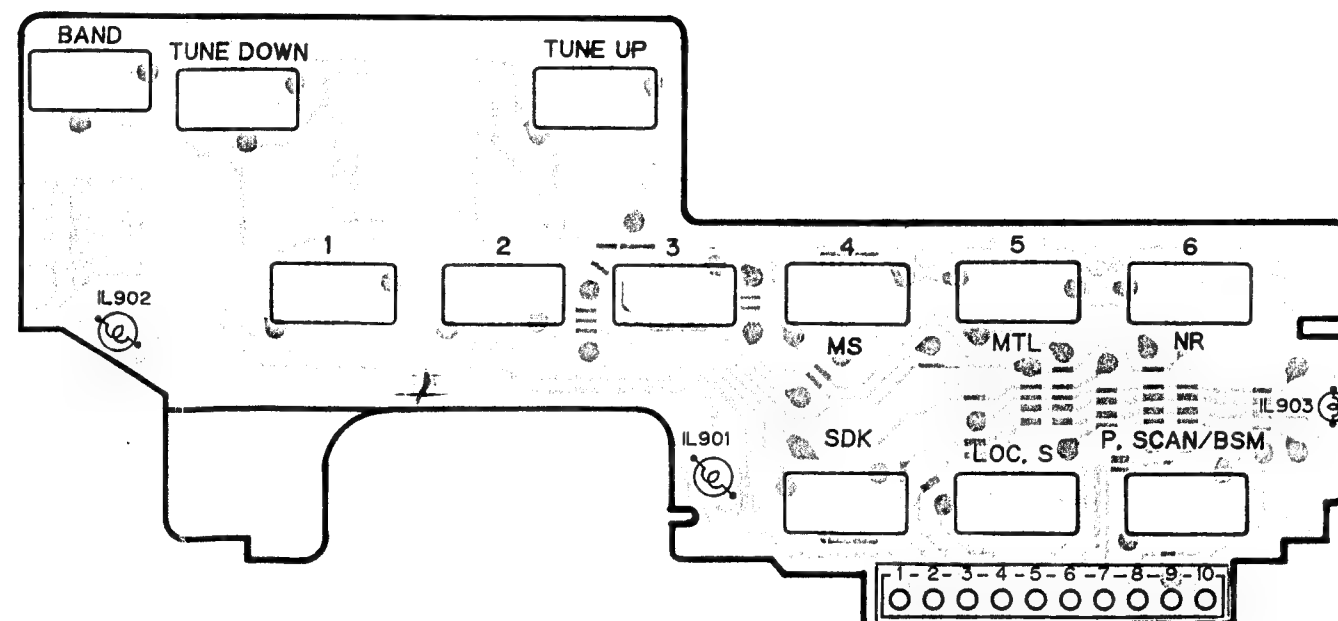
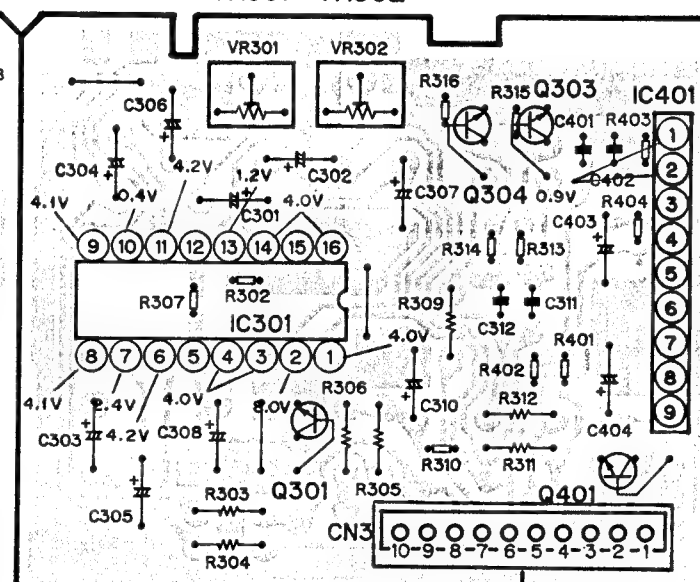
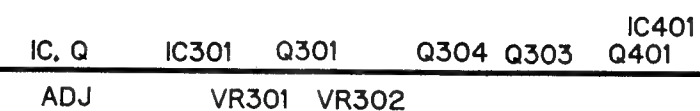
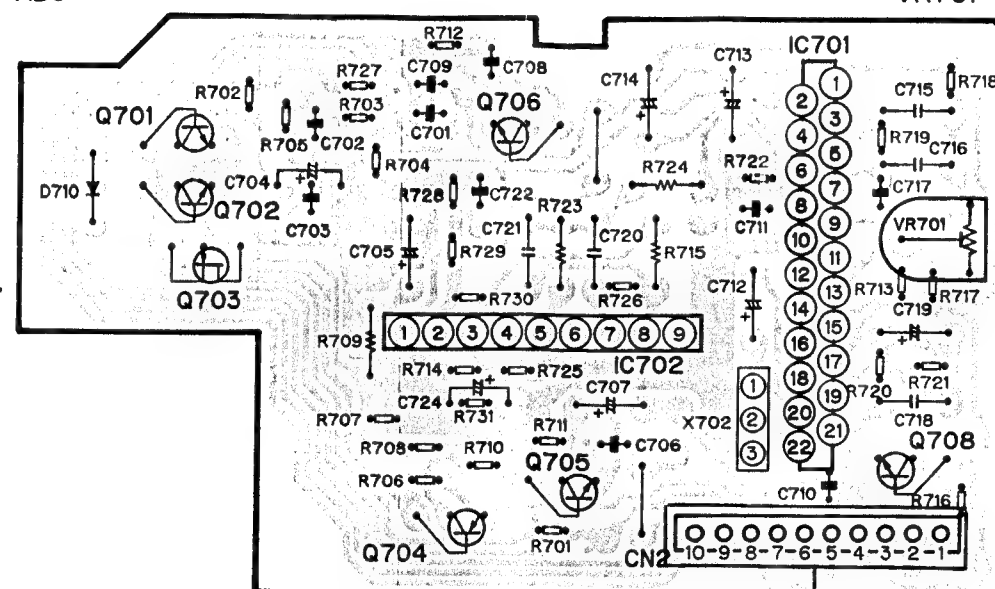
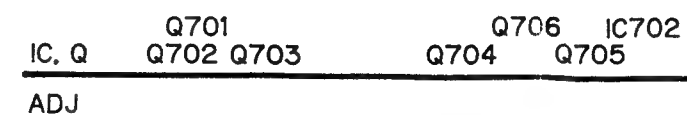
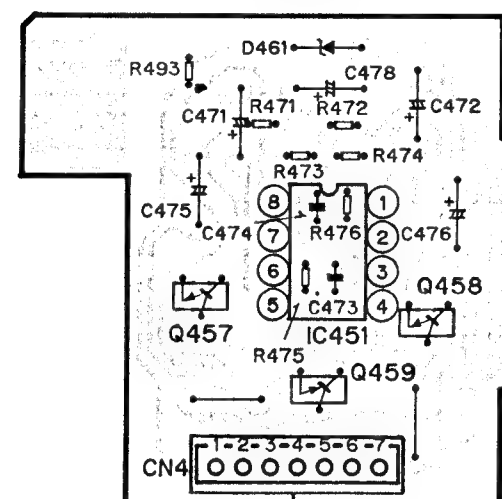


TUNER AMP P.C. BOARD



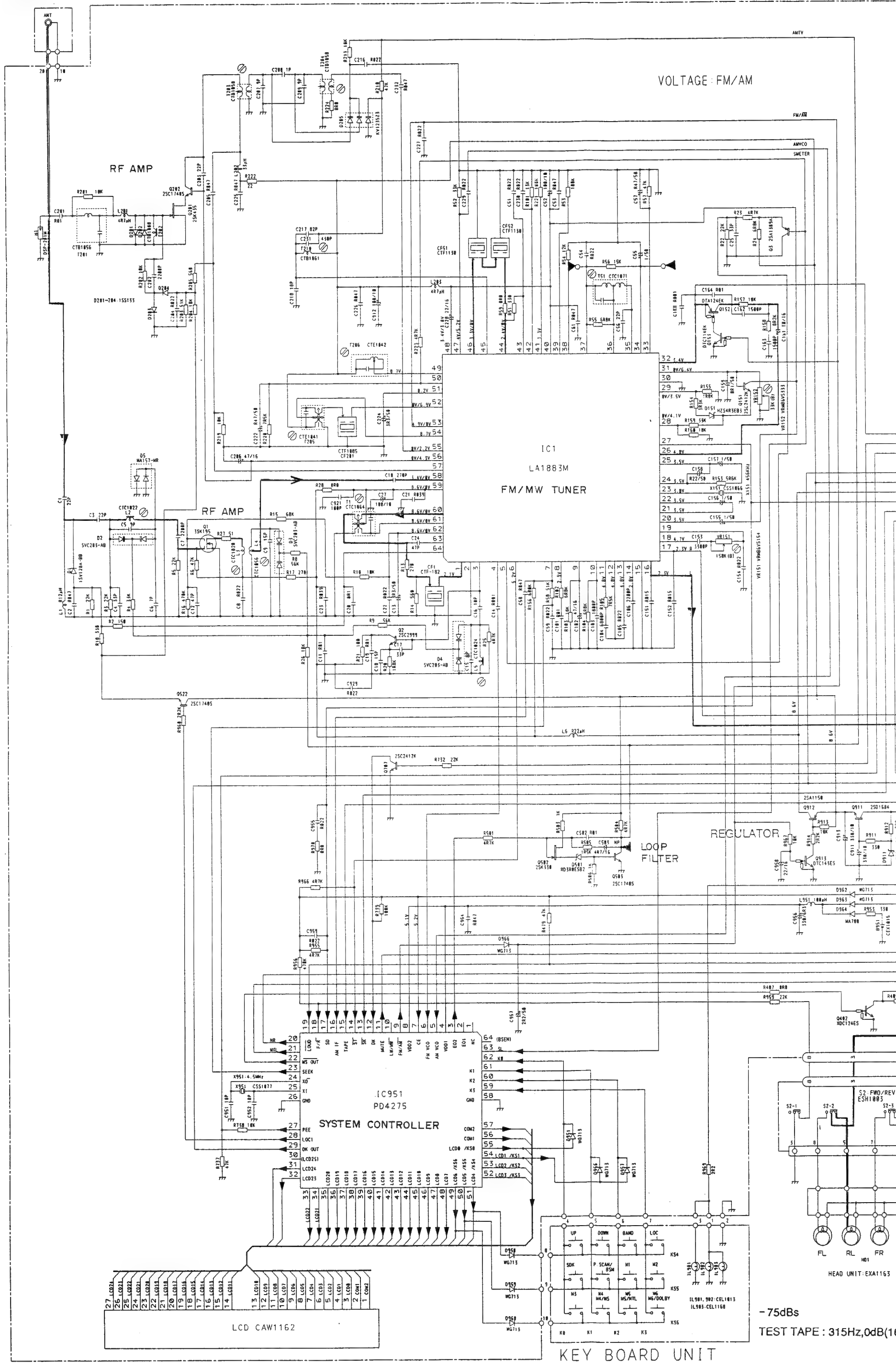


IC1			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1 : 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11 - 13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20 - 22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59 - 62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

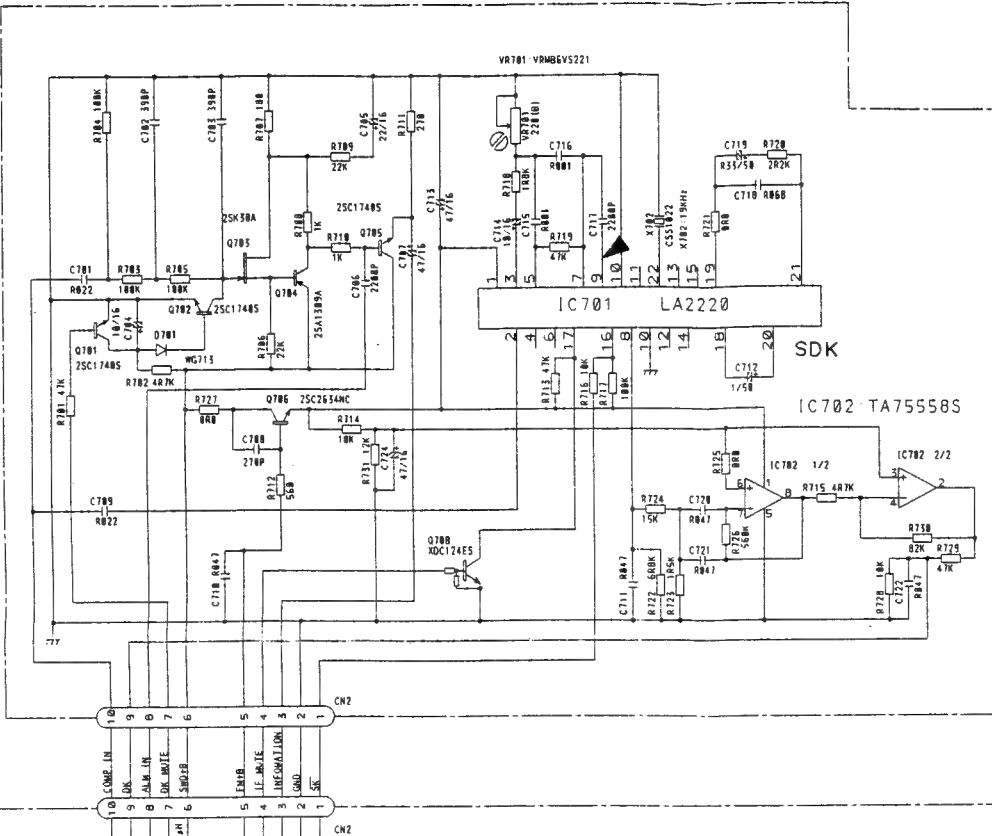


21

9. SCHEMATIC CIRCUIT DIAGRAM (KEH-3400SDK)



SDK P.C. BOARD



NOTE

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

—|— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

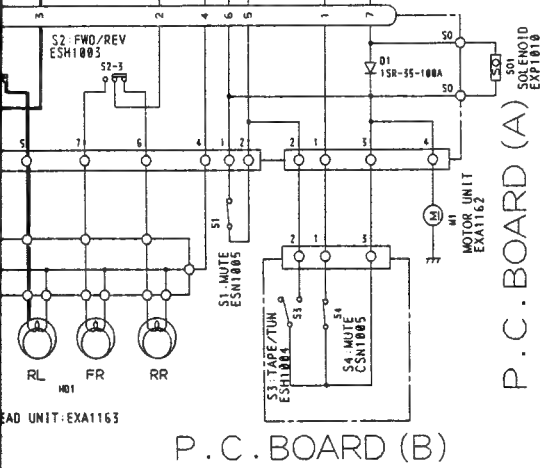
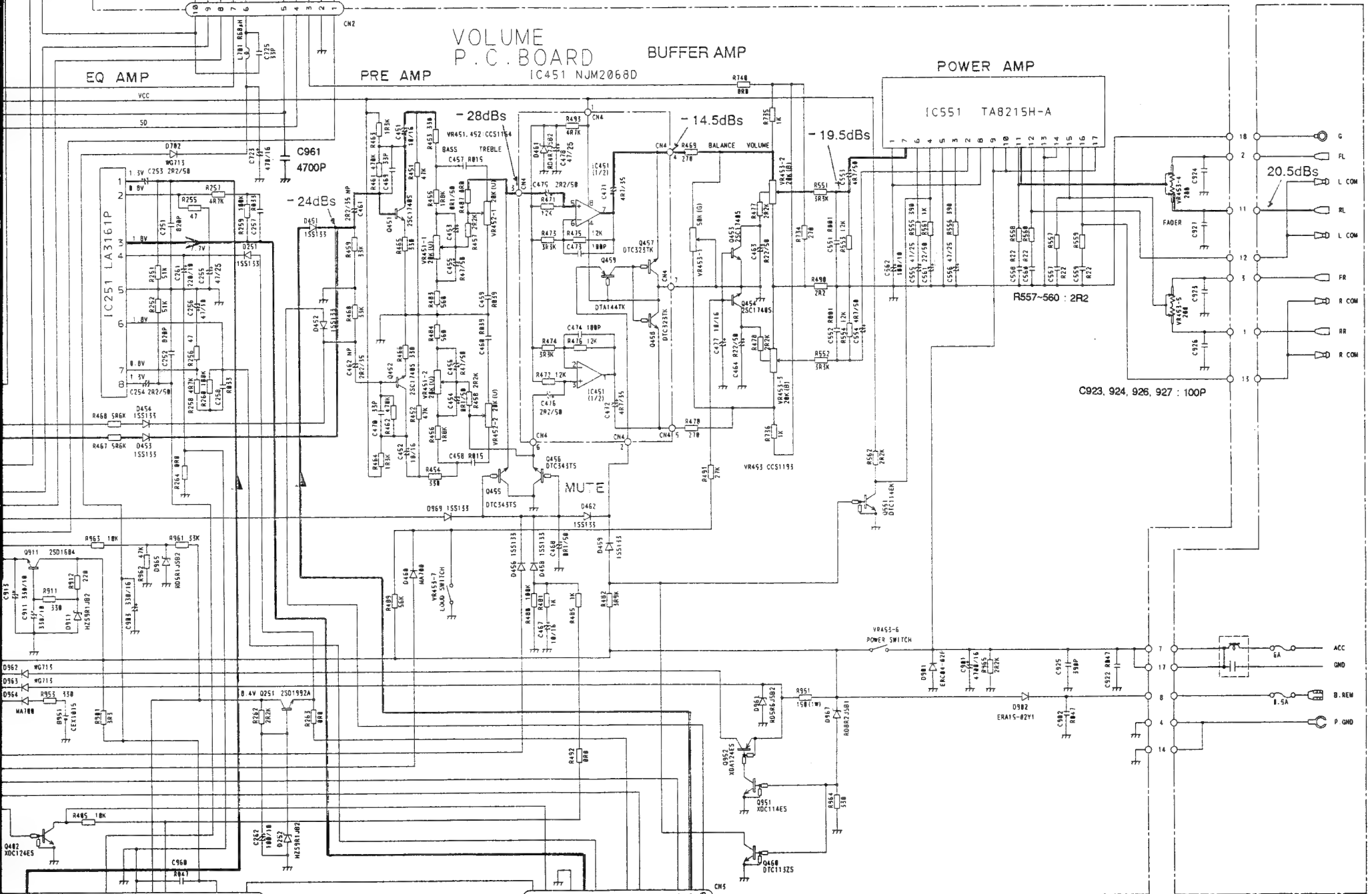
2.2-2R2
0.022-0022

TUNER AMP UNIT

Consists of

- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD
- DOLBY NR P.C. BOARD
- SDK P.C. BOARD

TUNER AMP P.C. BOARD



DOLBY NR P.C. BOARD

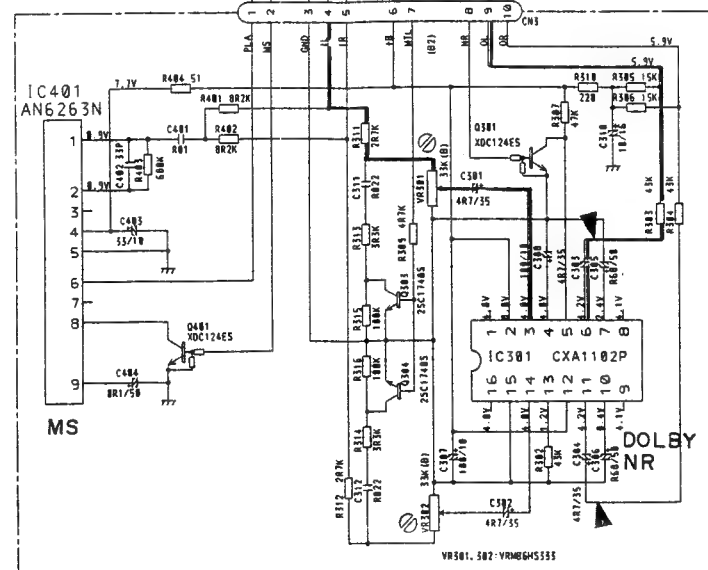
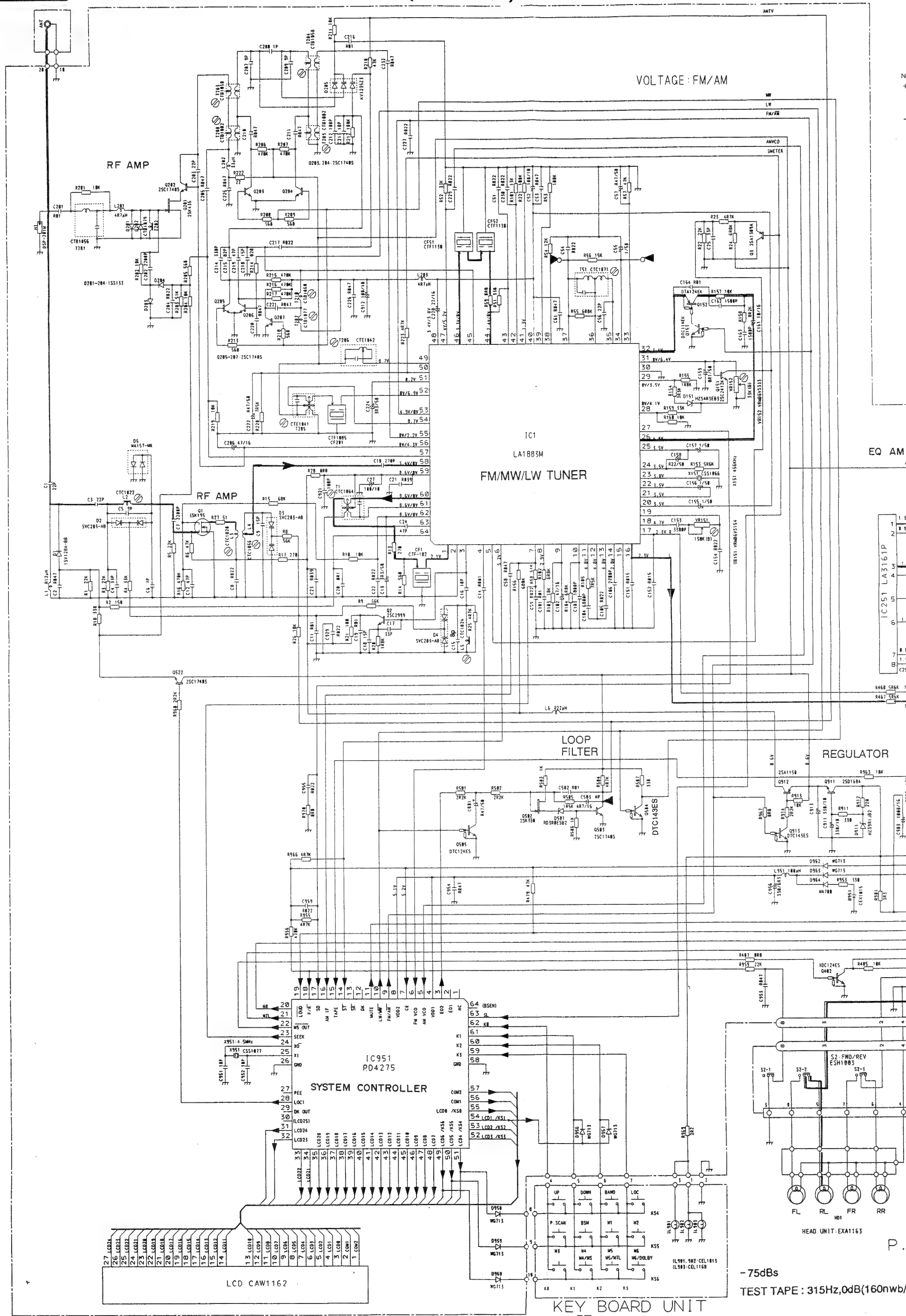


Fig. 10

10. SCHEMATIC CIRCUIT DIAGRAM (KEH-3430B)



NOTE

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

TUNER AMP UNIT

- Consists of
- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD
- DOLBY NR P.C. BOARD

TUNER AMP P.C. BOARD

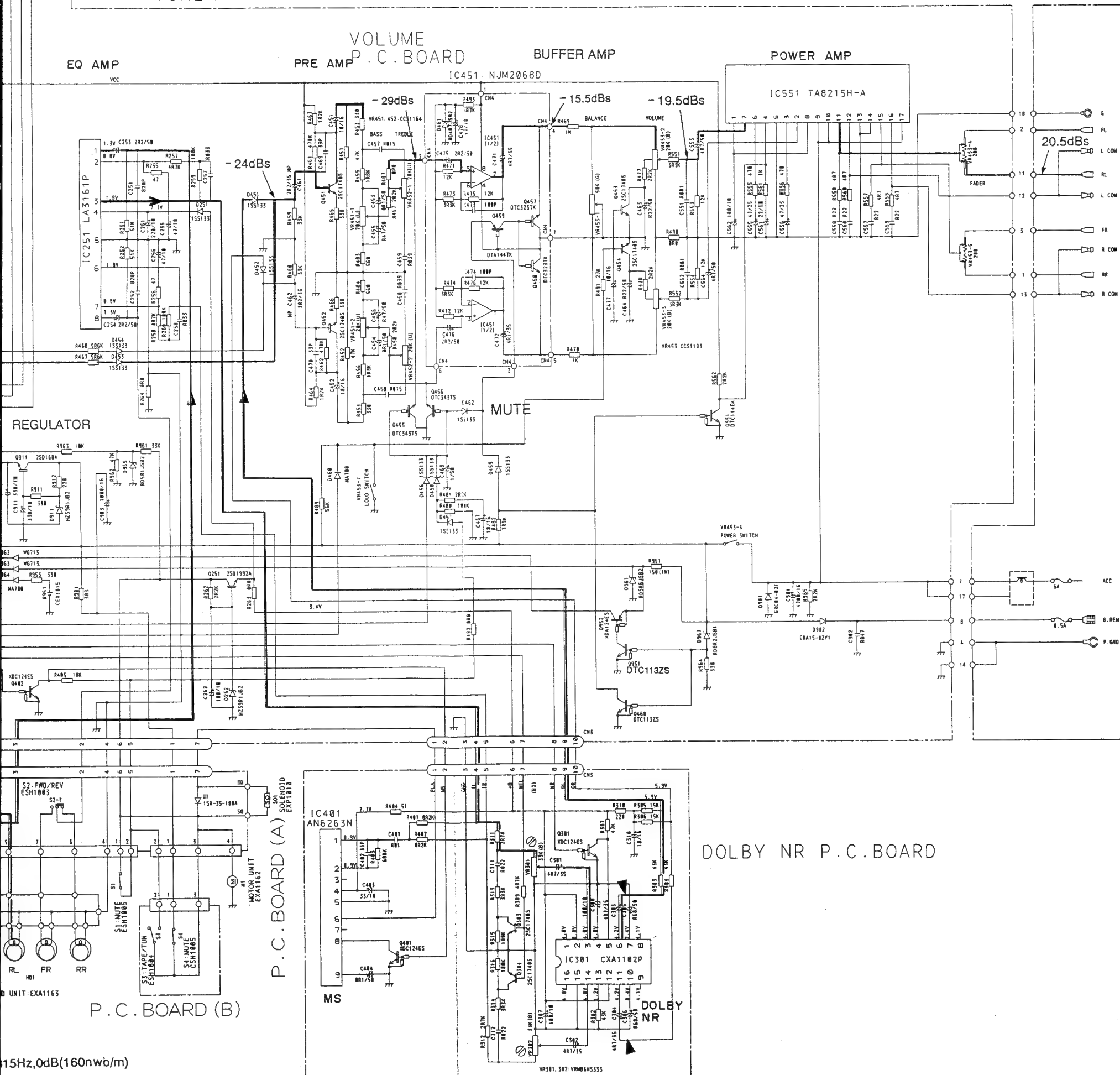
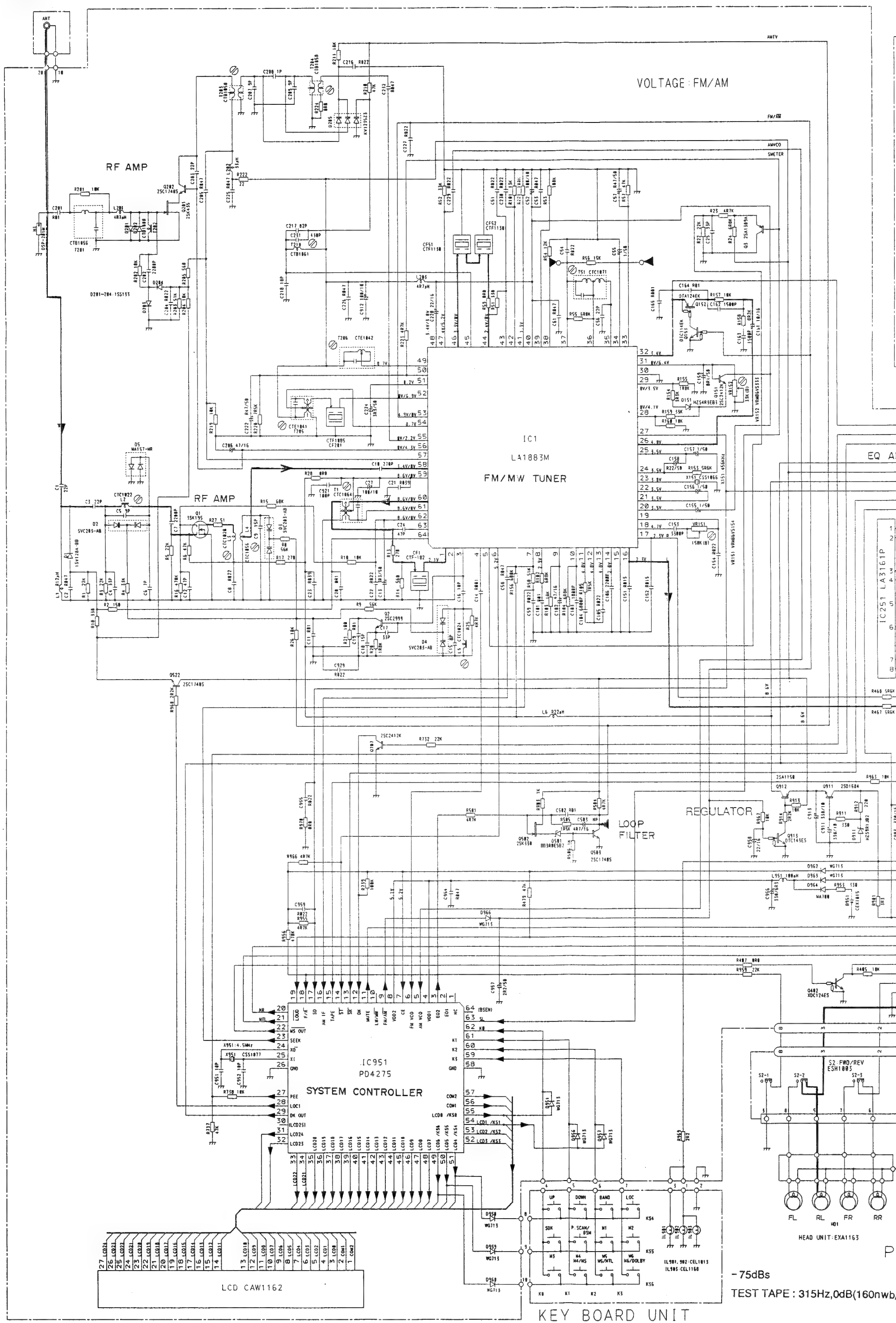
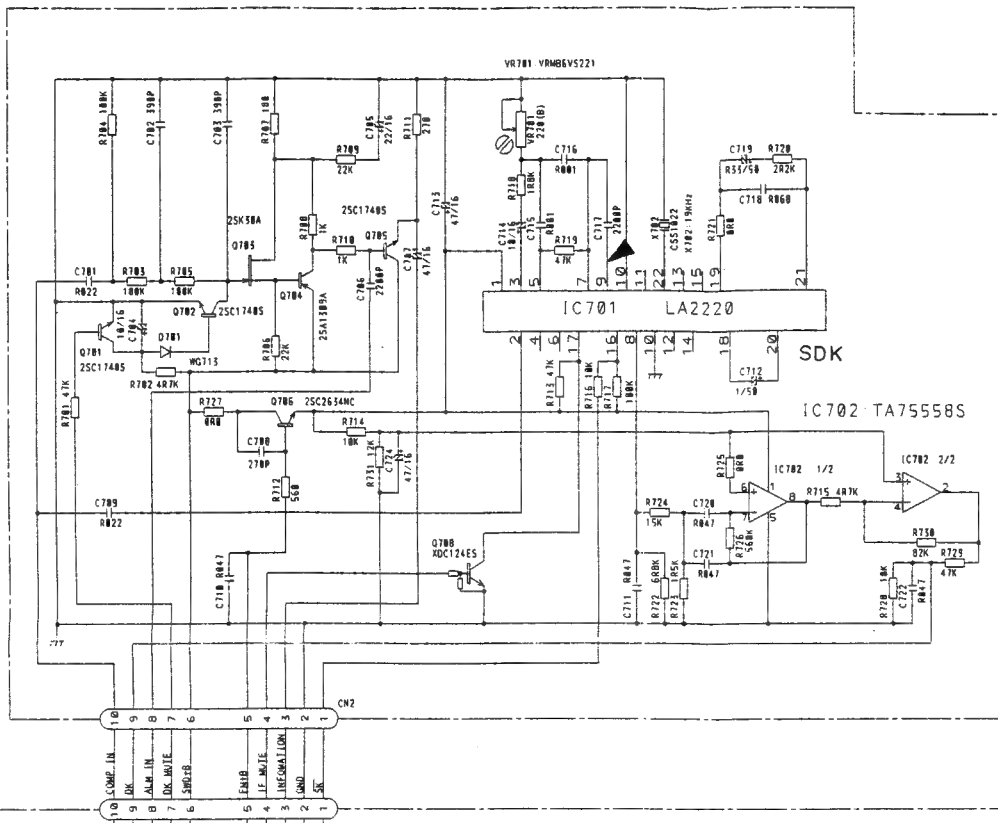


Fig. 11

9. SCHEMATIC CIRCUIT DIAGRAM (KEH-3400SDK)



SDK P.C. BOARD



NOTE

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

—□— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

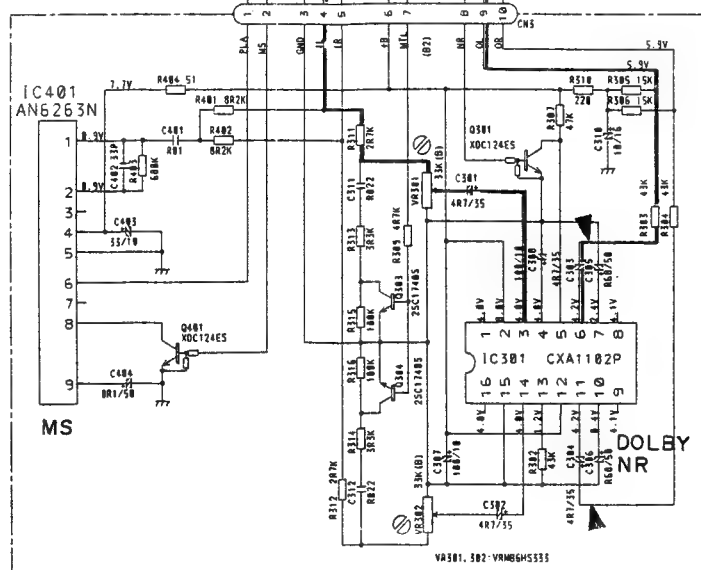
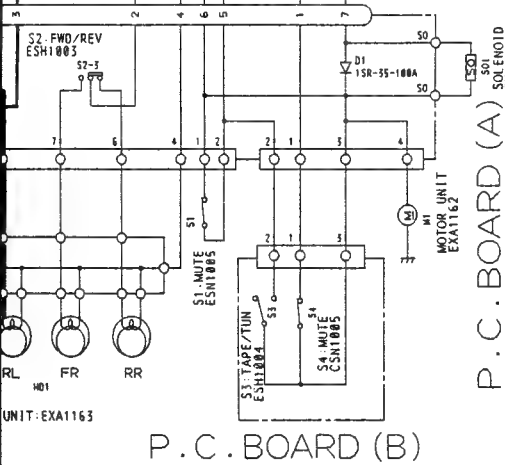
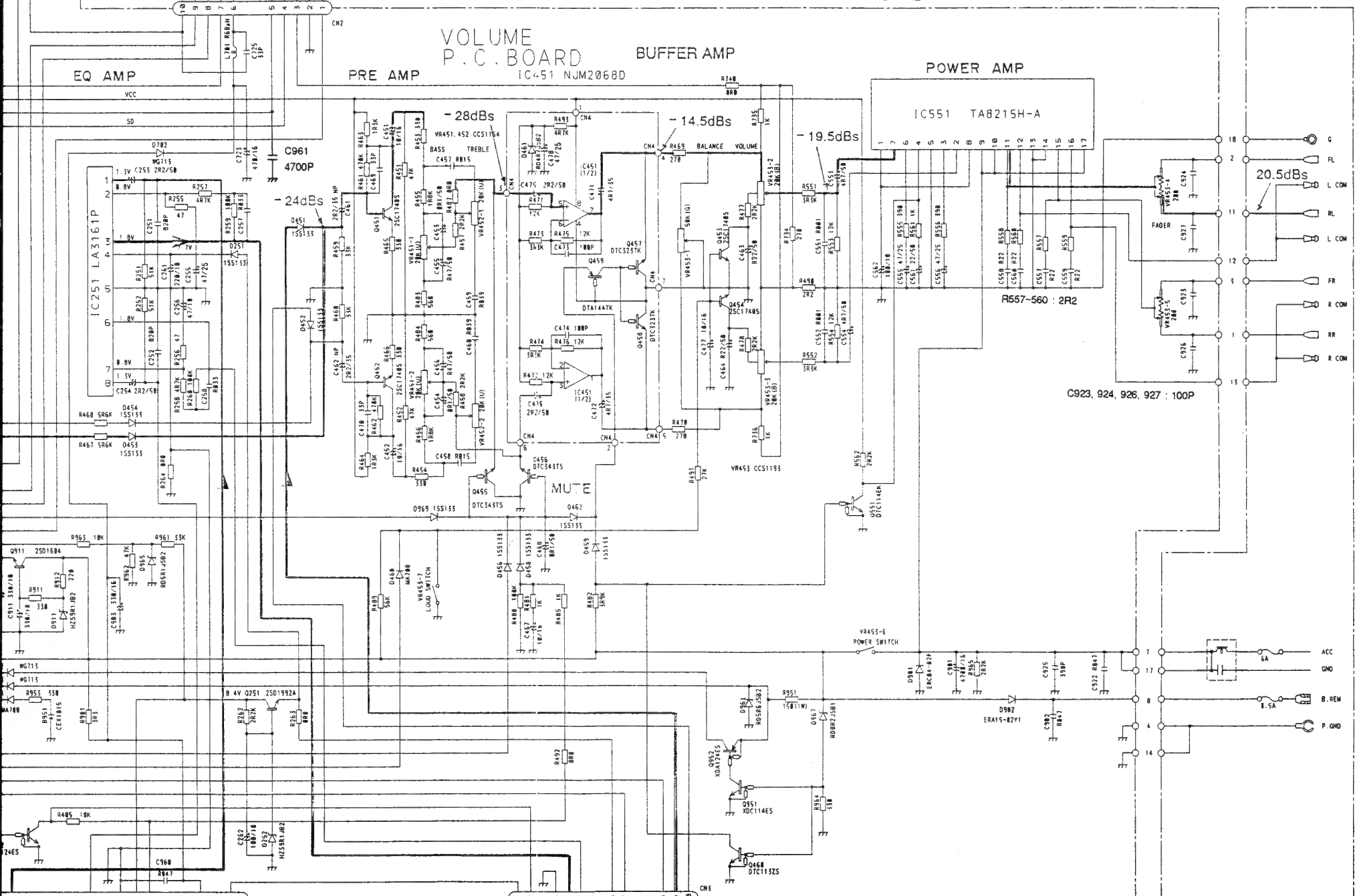
Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

TUNER AMP UNIT

Consists of

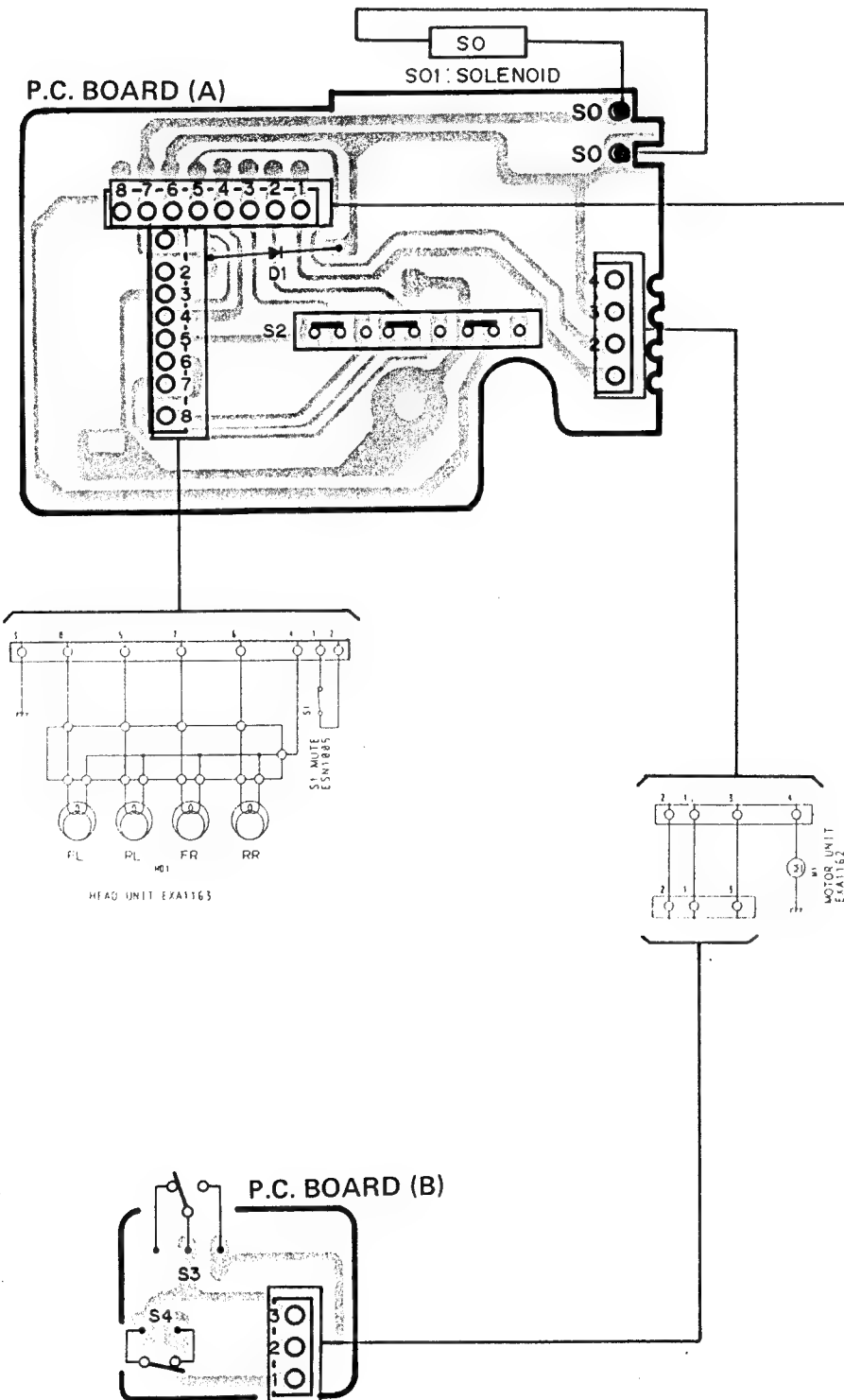
- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD
- DOLBY NR P.C. BOARD
- SDK P.C. BOARD

TUNER AMP P.C. BOARD



DOLBY NR P.C. BOARD

11. CONNECTION DIAGRAM (KEH-3430B)



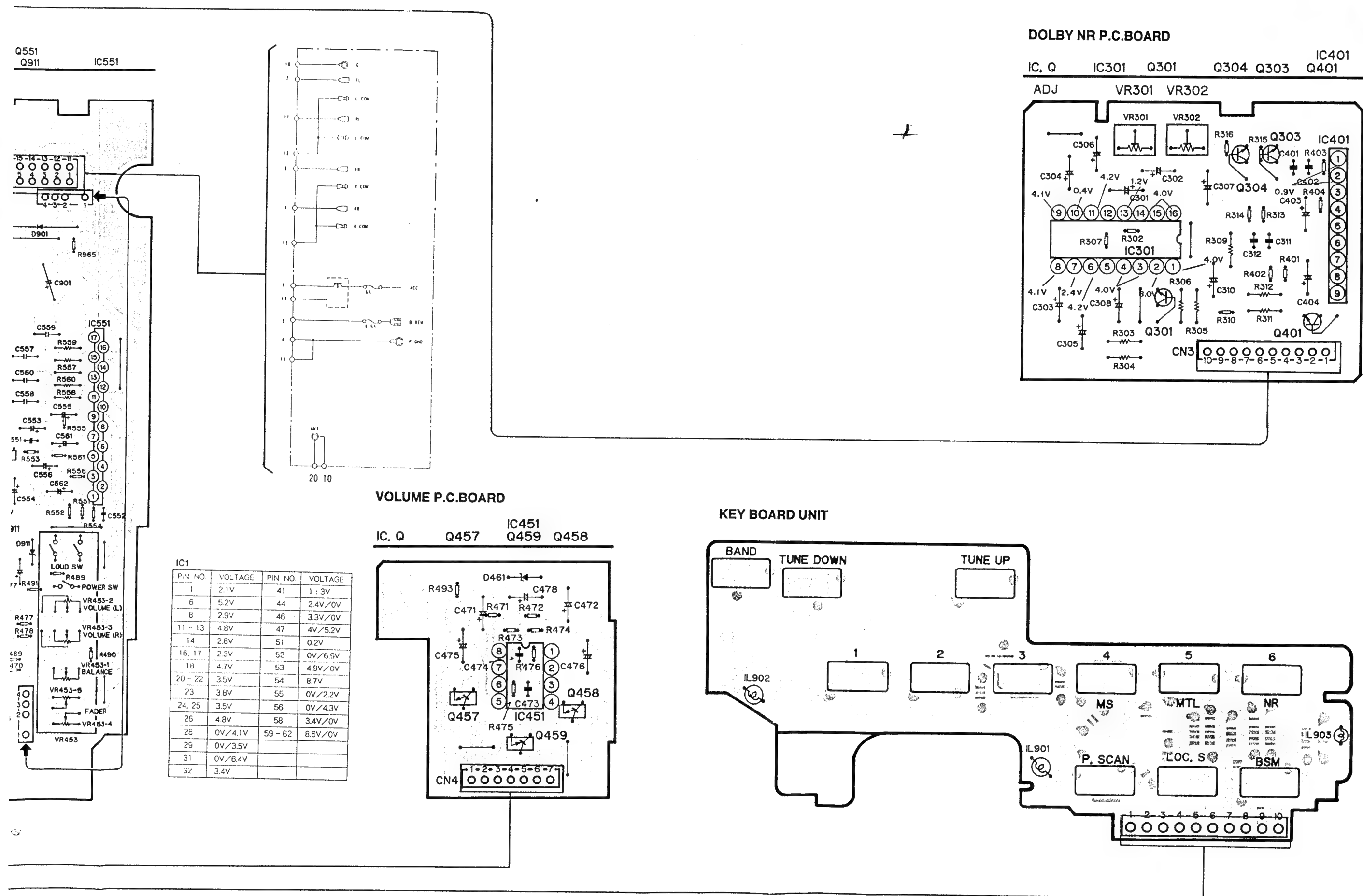


Fig. 12

12. CONNECTION DIAGRAM (KEH-2400SDK)

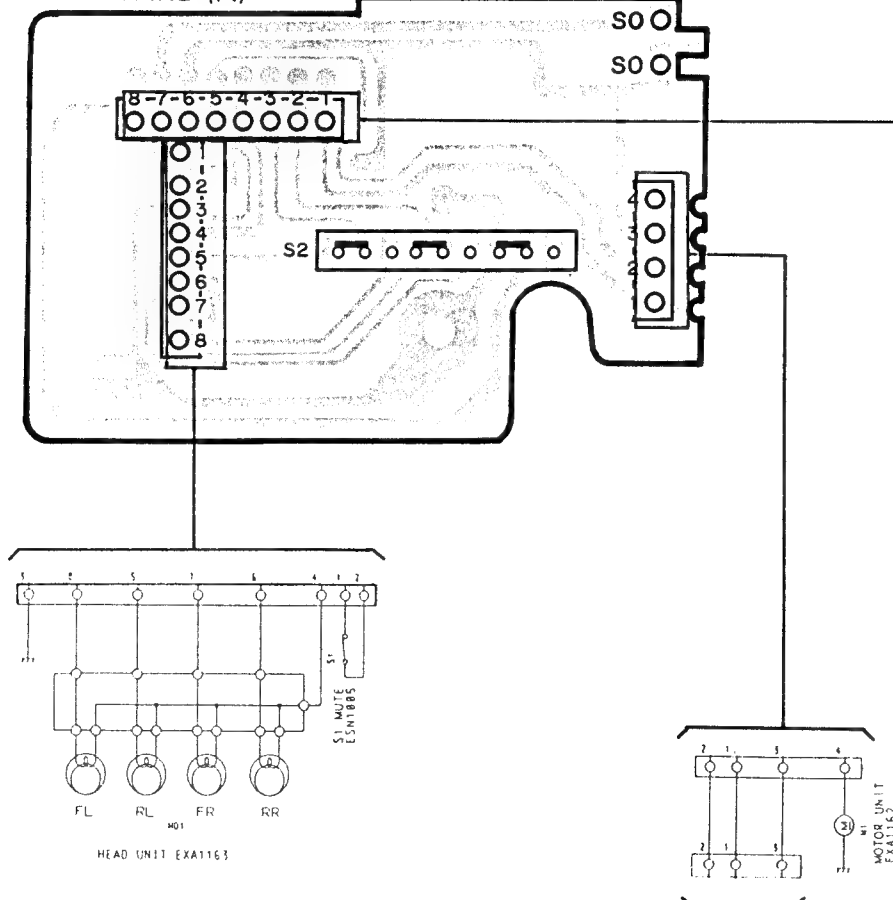
A

B

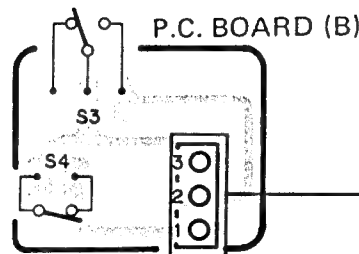
C

D

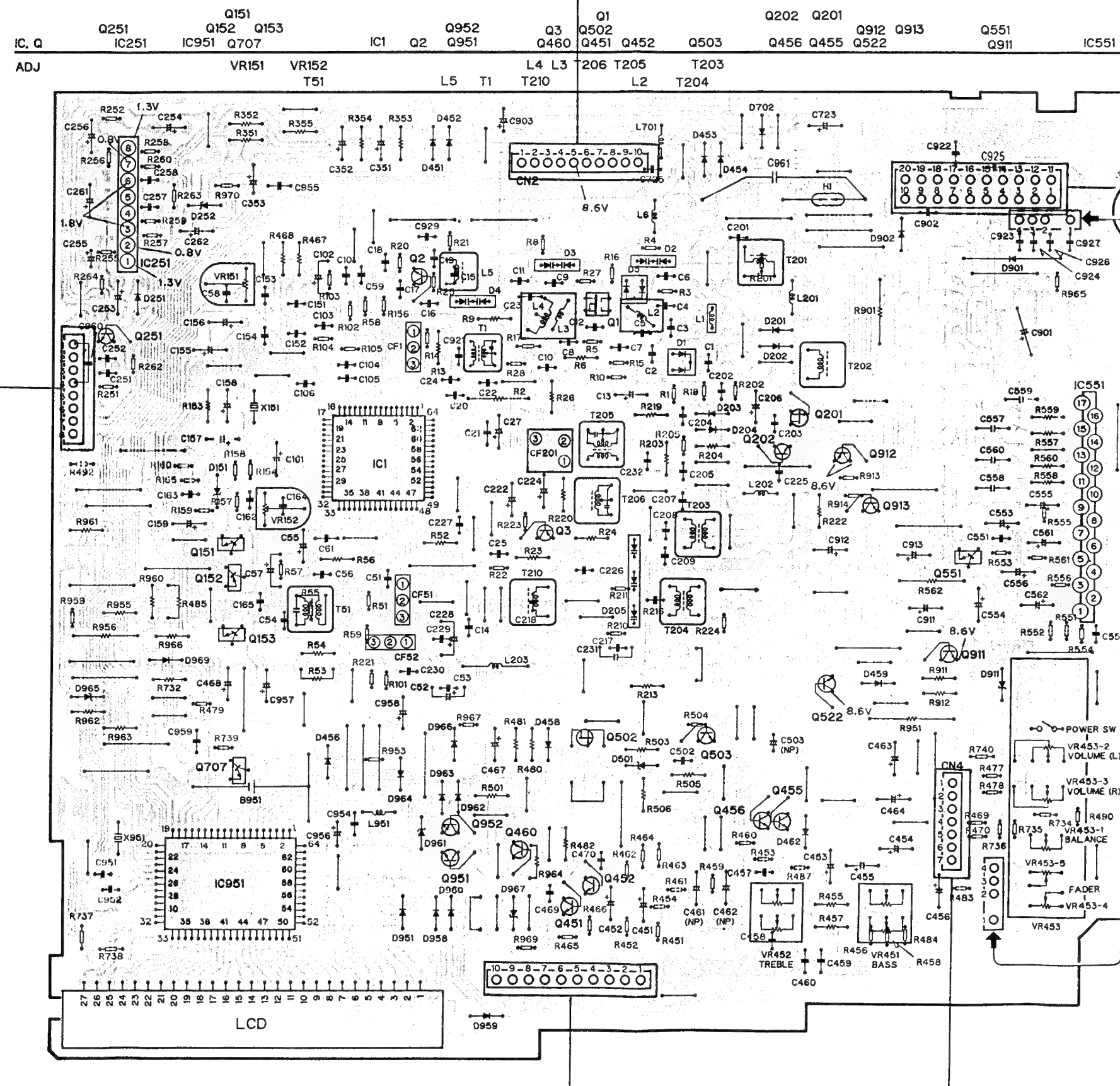
P.C. BOARD (A)

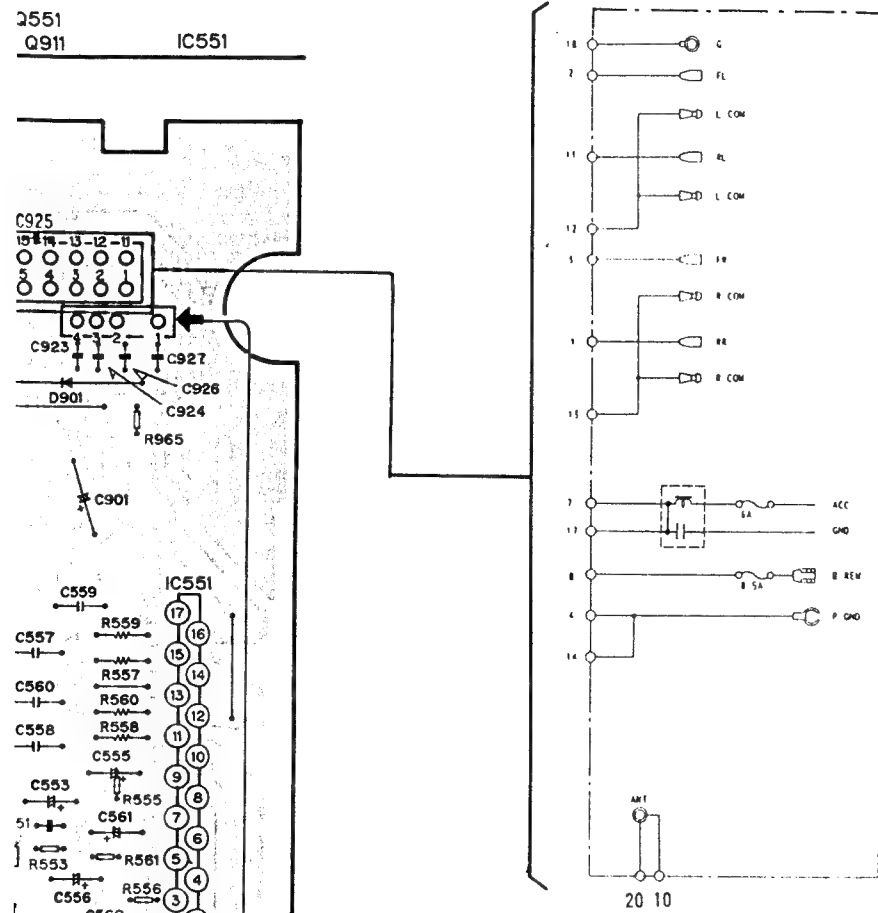


P.C. BOARD (B)



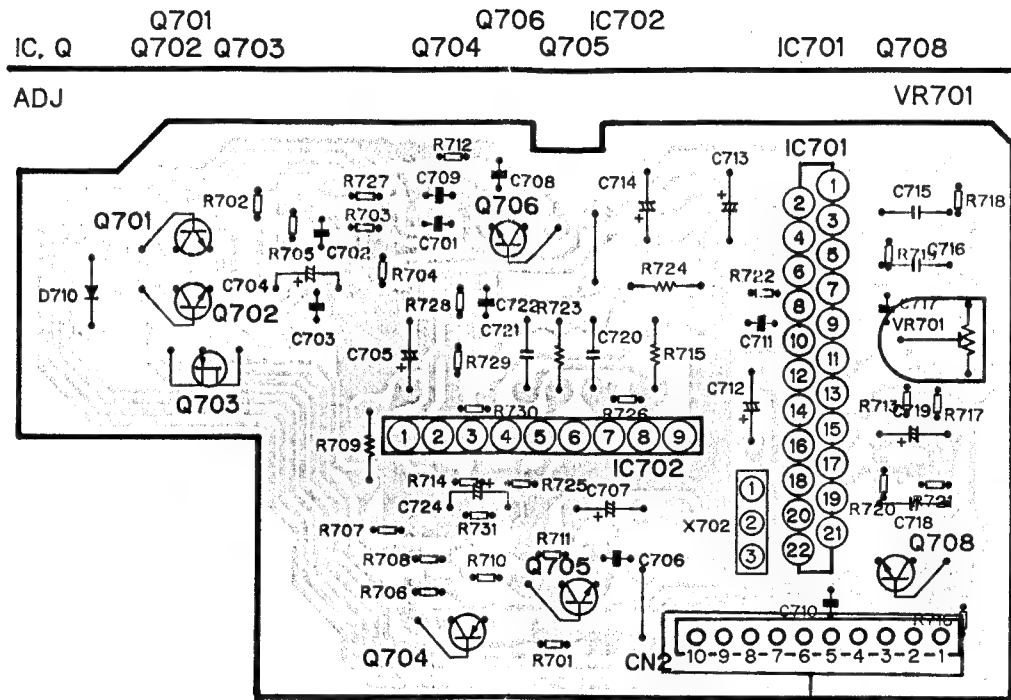
TUNER AMP P.C. BOARD



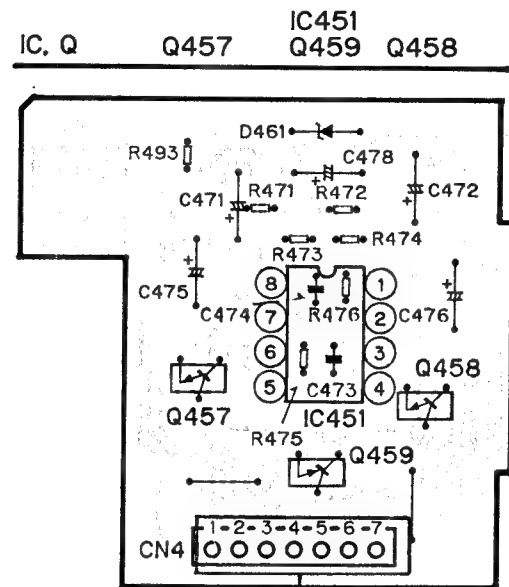


IC1			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1 : 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11 - 13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20 - 22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59 - 62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

SDK P.C.BOARD



VOLUME P.C.BOARD



KEY BOARD UNIT

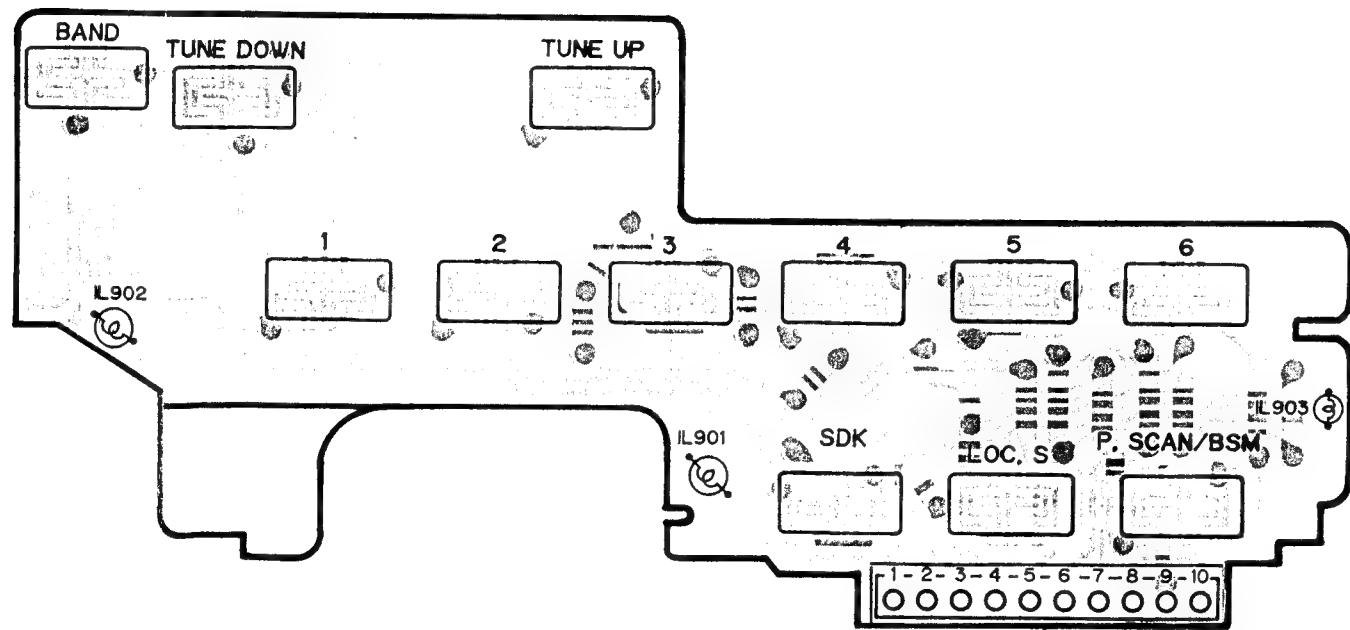
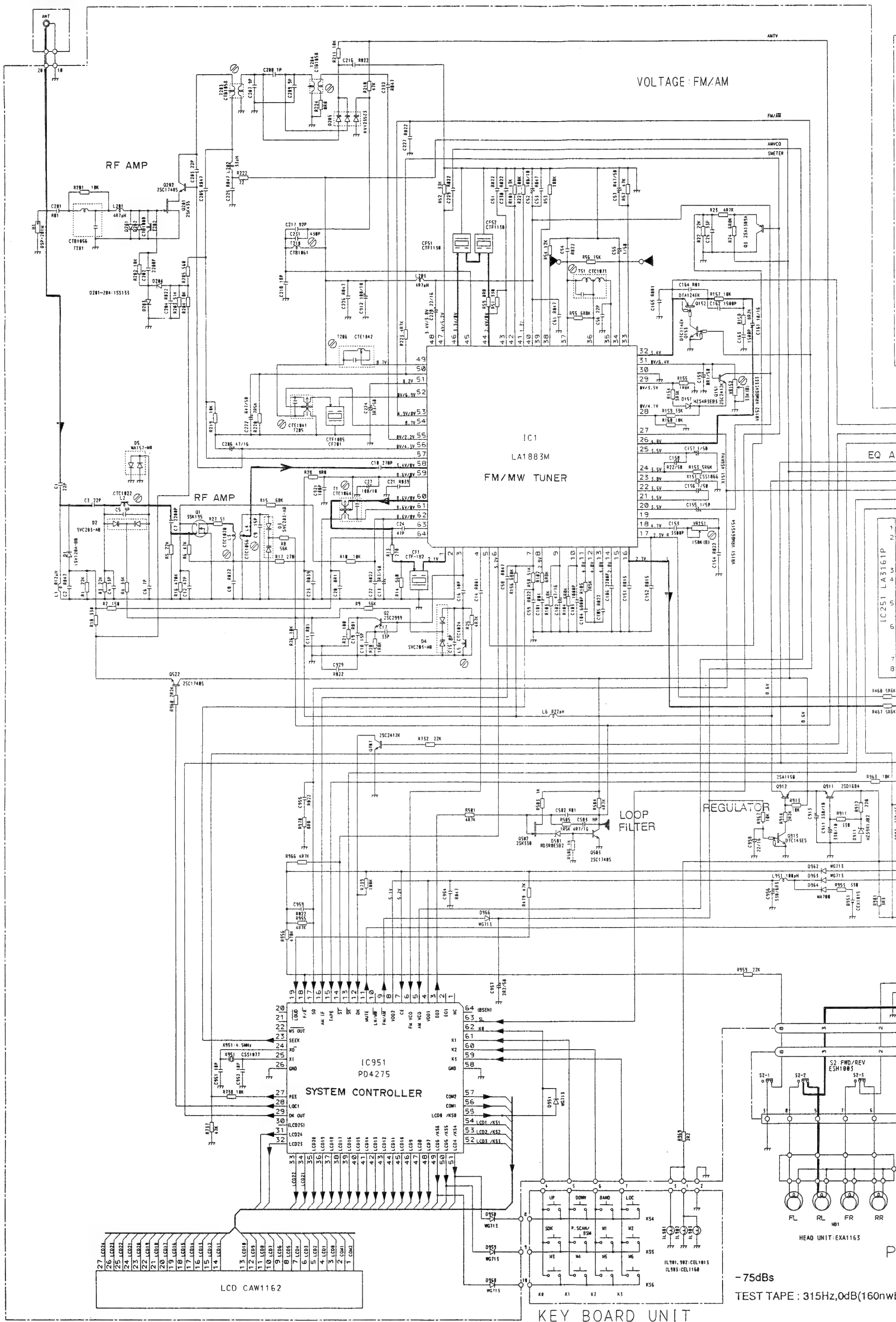
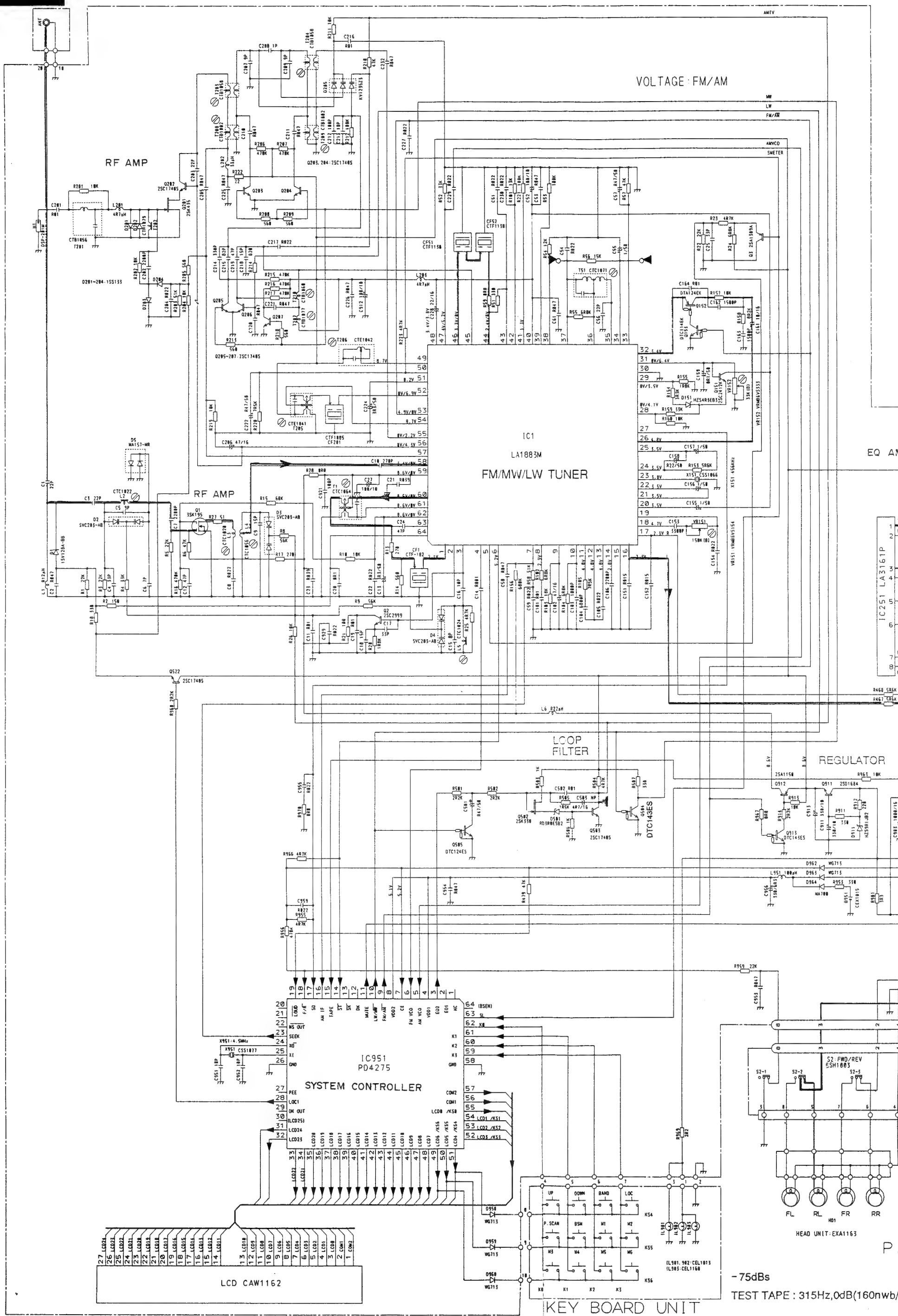


Fig. 13

13. SCHEMATIC CIRCUIT DIAGRAM (KEH-2400SDK)



14. SCHEMATIC CIRCUIT DIAGRAM (KEH-2430B)



-75dBs

TEST TAPE: 315Hz, 0dB(160nwb)

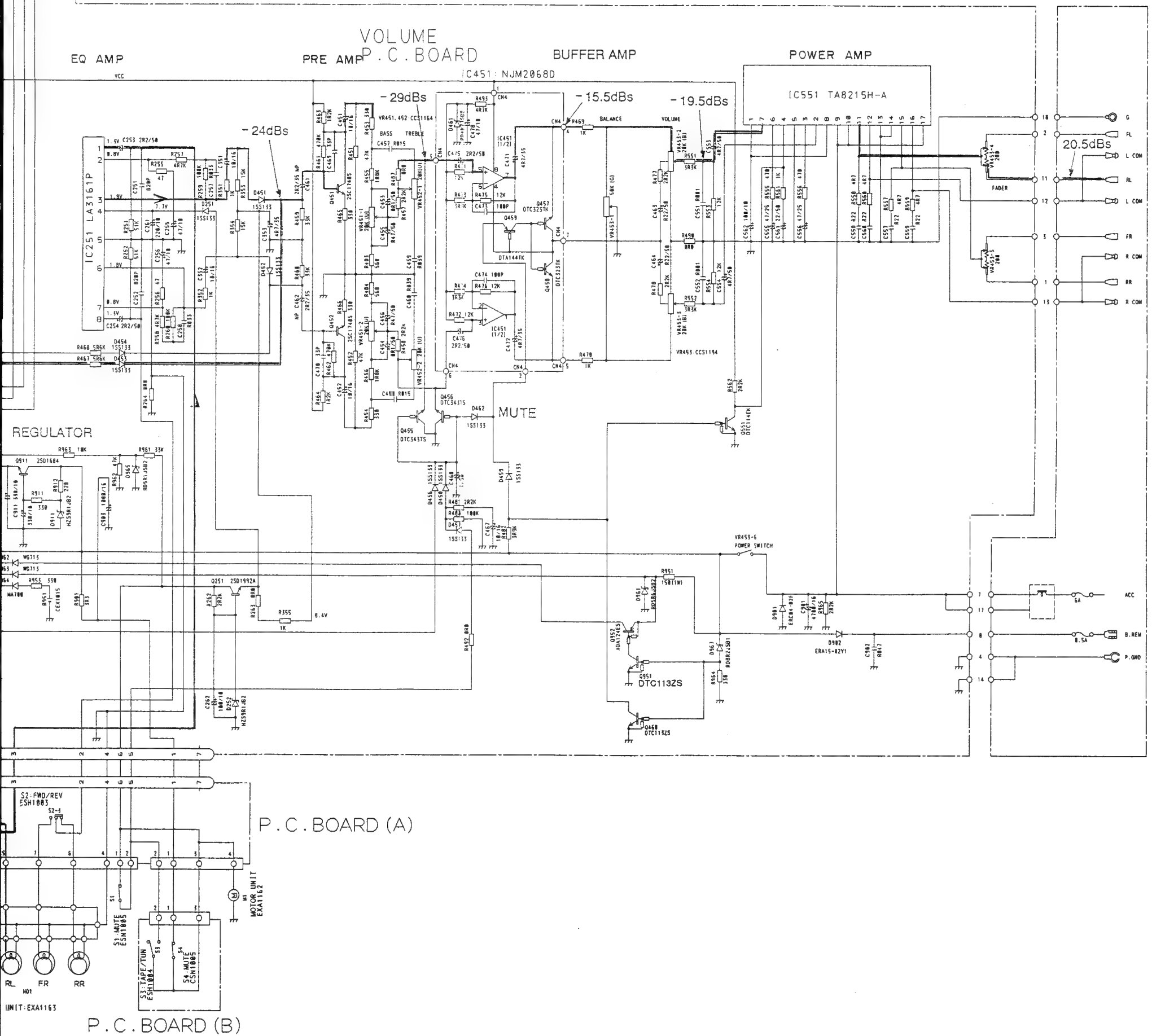
NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

TUNER AMP UNIT
Consists of
● TUNER AMP P.C. BOARD
● VOLUME P.C. BOARD

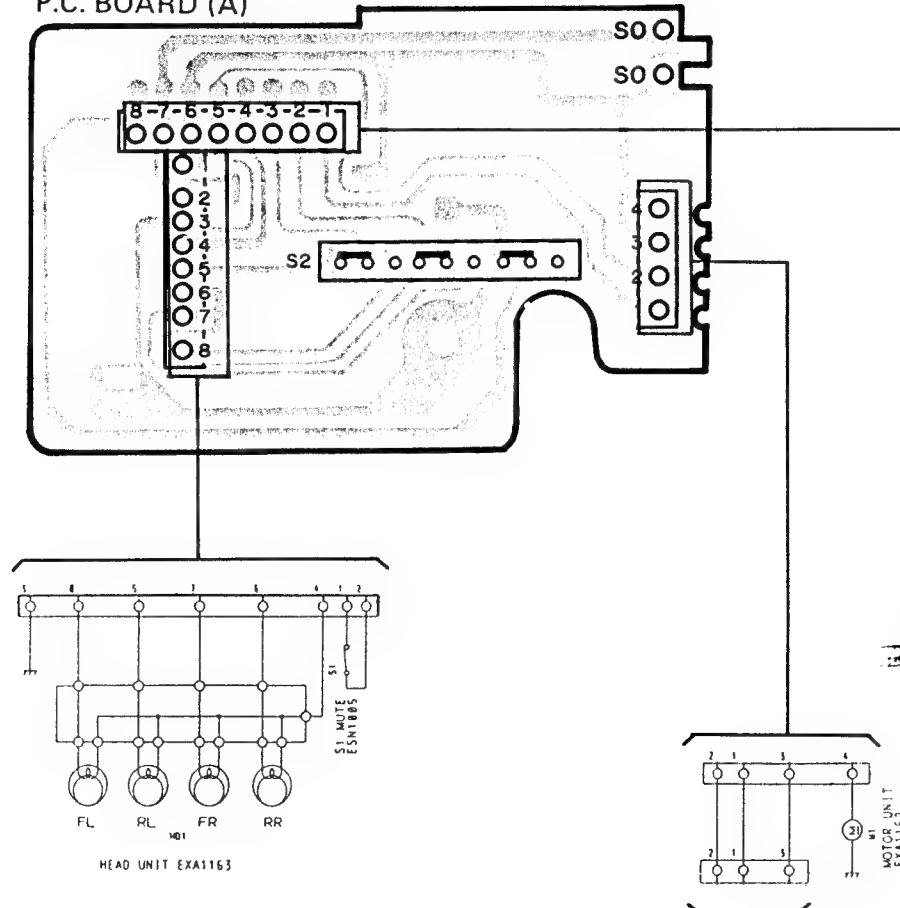
TUNER AMP P.C. BOARD



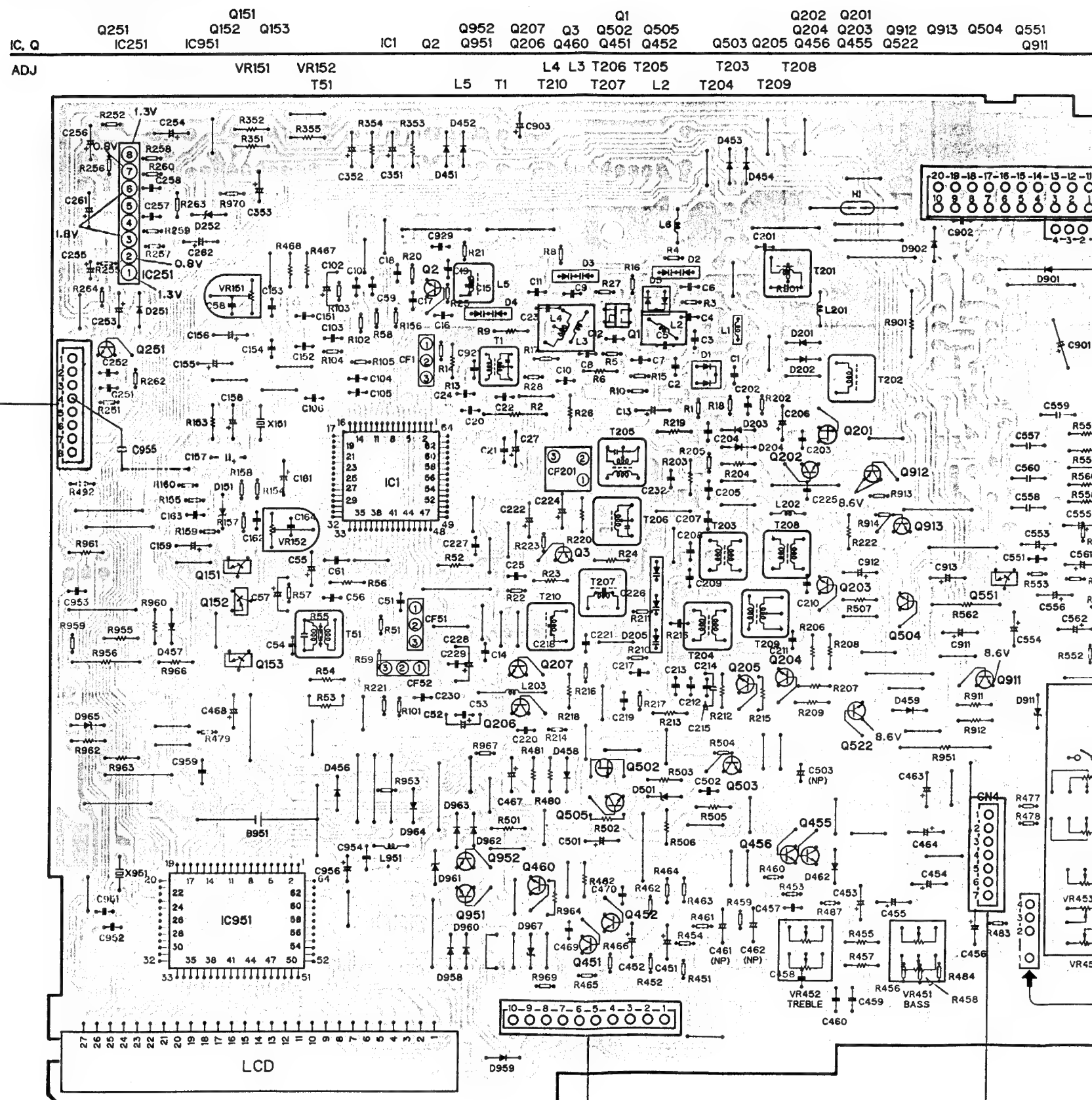
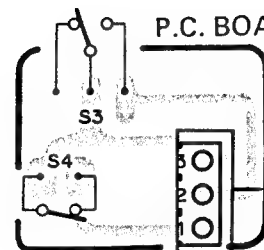
15. CONNECTION DIAGRAM (KEH-2430B)

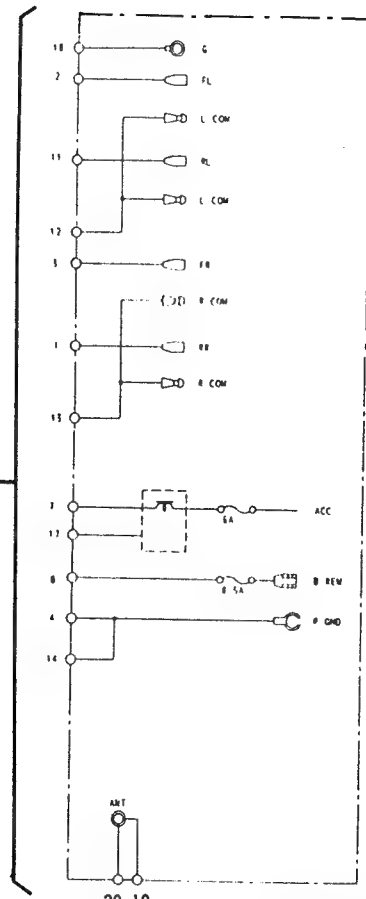
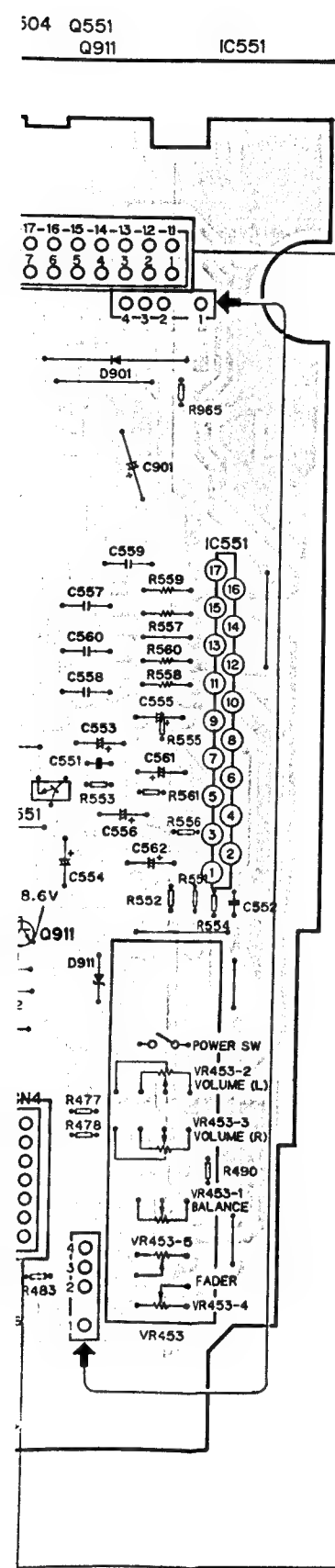
TUNER AMP P.C. BOARD

P.C. BOARD (A)



P.C. BOARD (B)

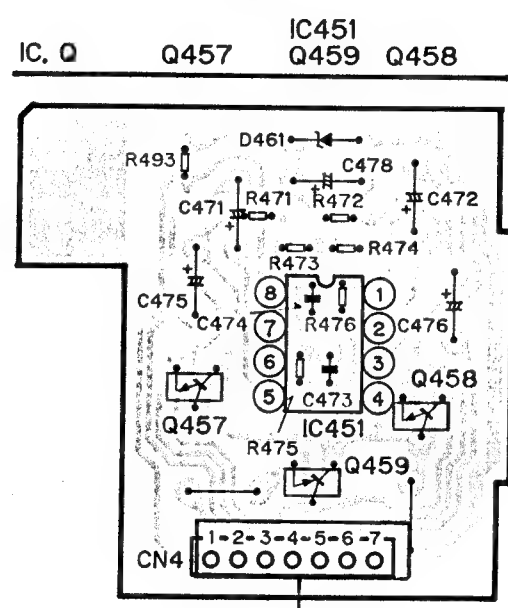




IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1.3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11-13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20-22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59-62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

VOLUME P.C. BOARD



KEY BOARD UNIT

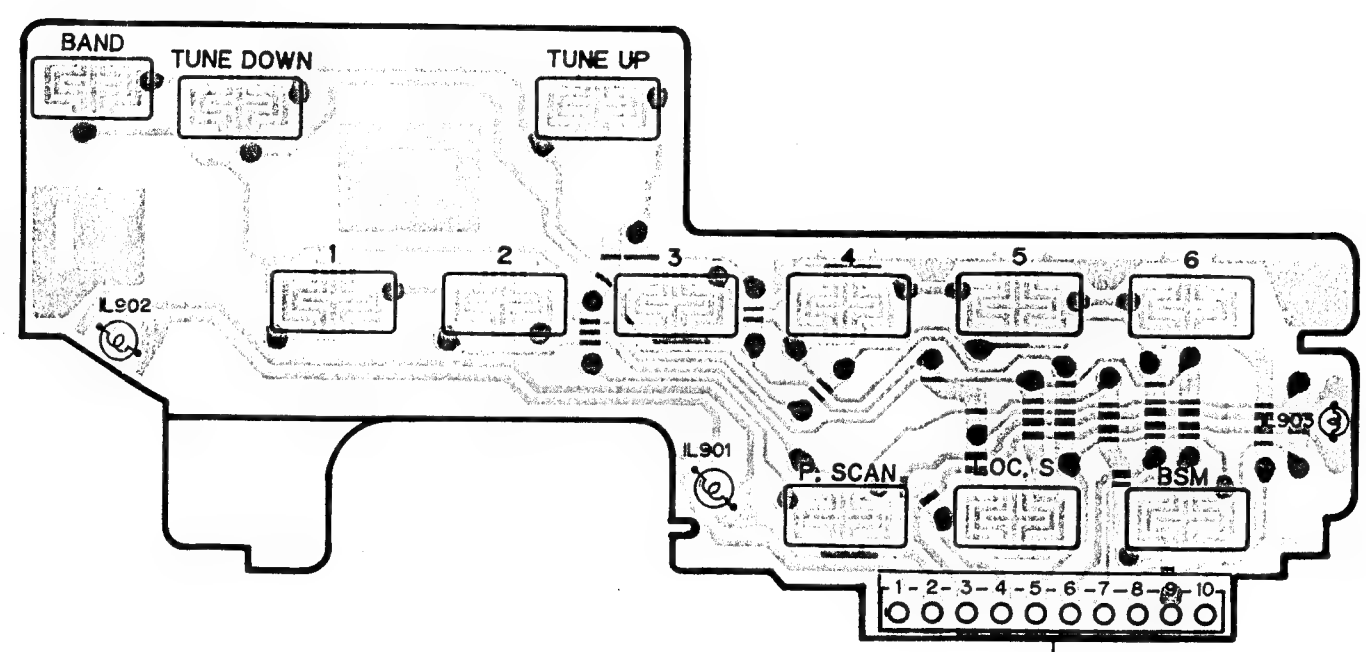


Fig. 16

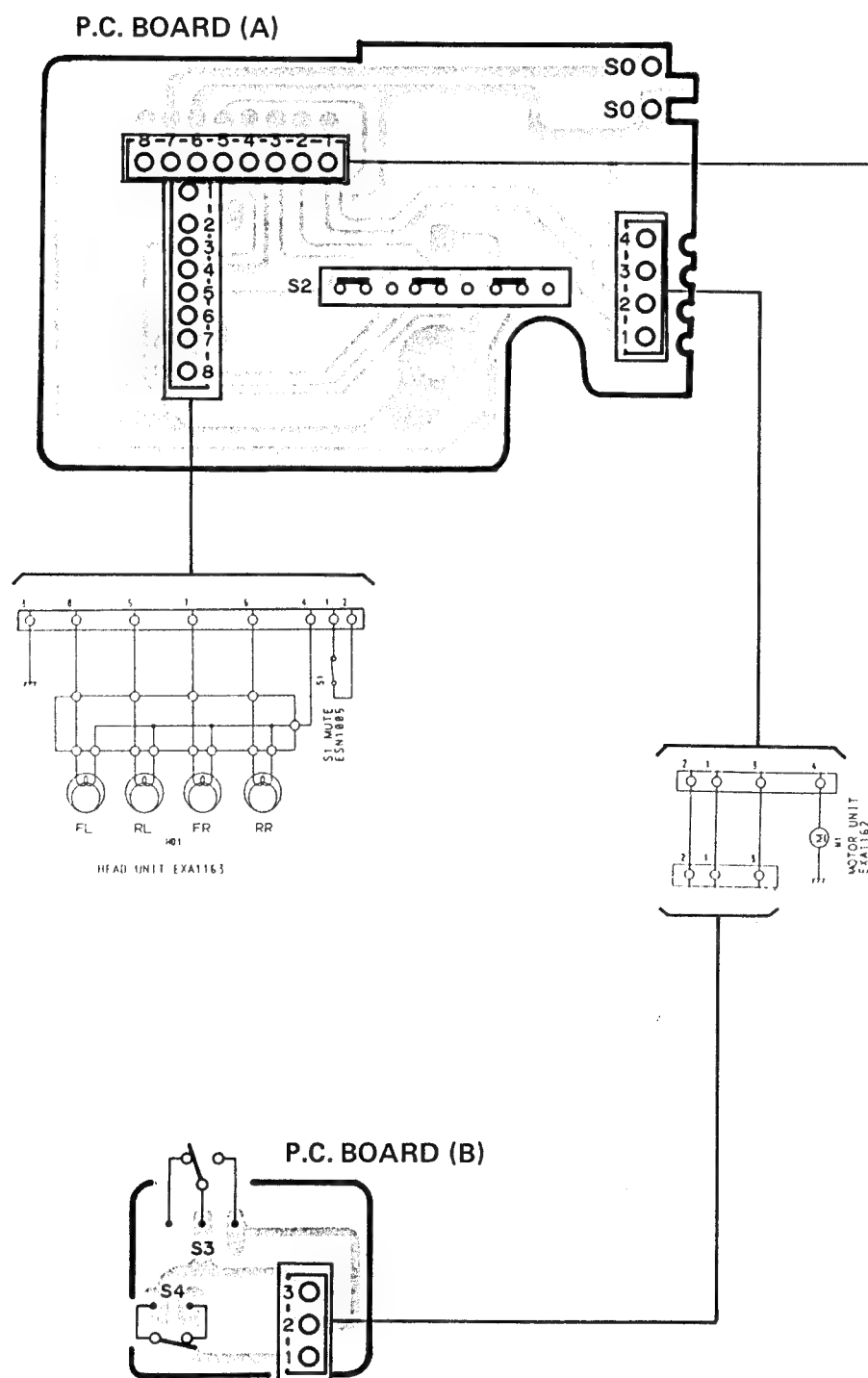
16. CONNECTION DIAGRAM (KEH-2400B)

A

B

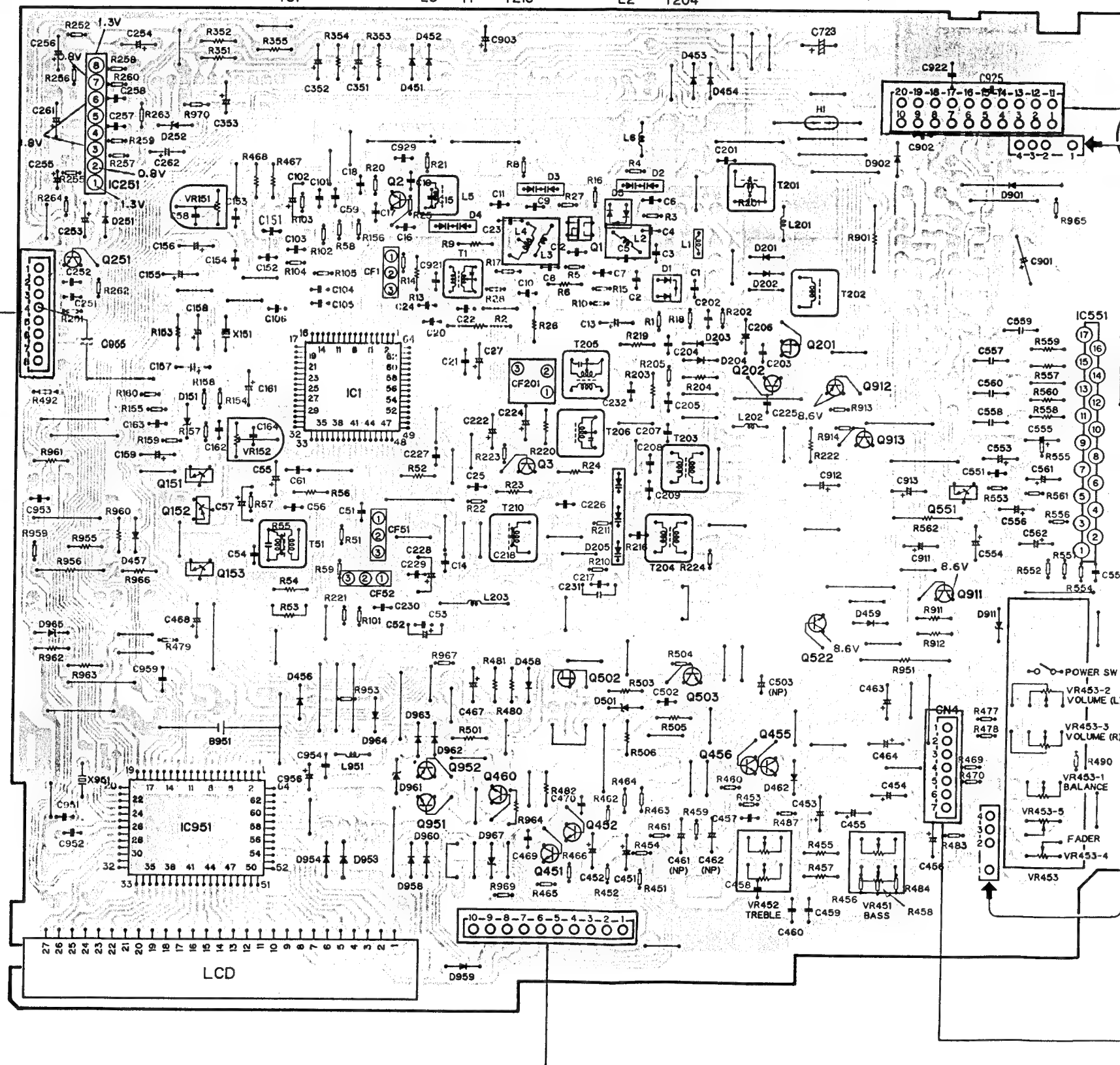
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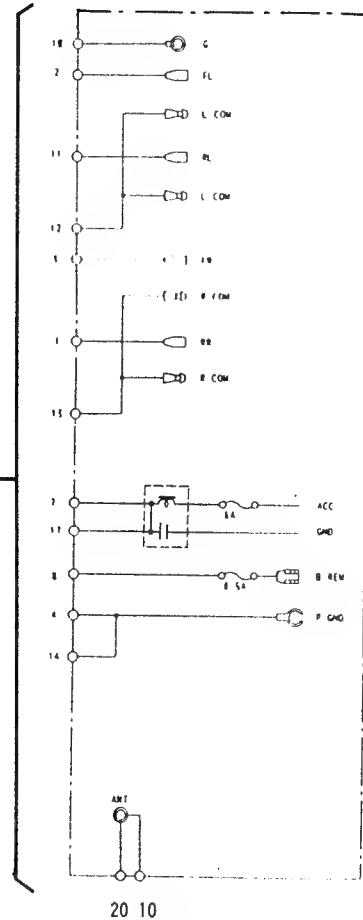
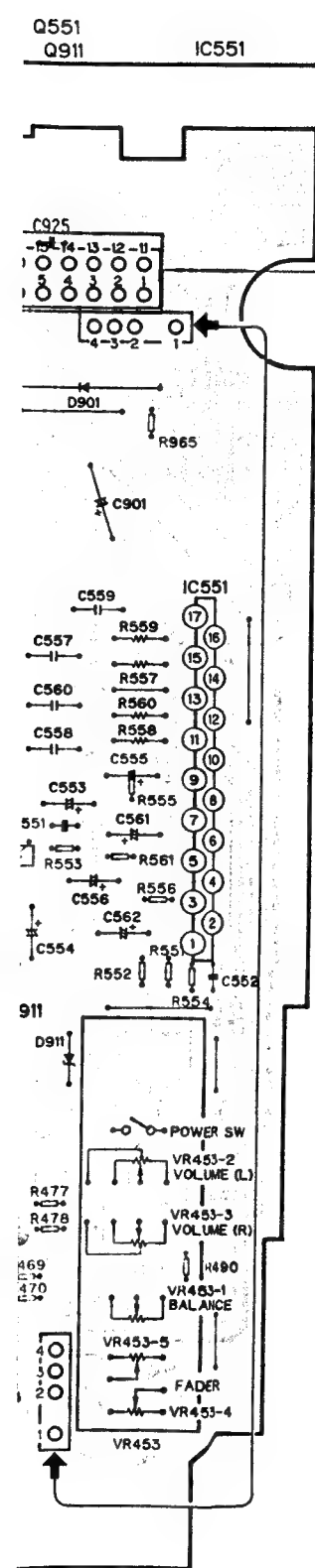
D



TUNER AMP P.C.BOARD

Q251		Q151		Q152		Q153		Q952		Q1		Q202		Q201		Q912		Q913		Q551		IC551	
IC251		IC951		IC1		Q2		Q951		Q3		Q502		Q452		Q503		Q456		Q455		Q522	
ADJ		VR151		VR152		T51		L5		T1		L4		L3		T206		T205		T203		L2	



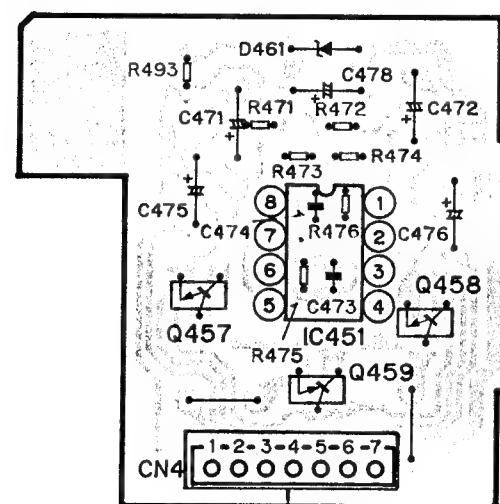


IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1 : 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11-13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.0V
18	4.7V	53	4.9V/0V
20, 22	3.1V	54	11.7V
23	3.1V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59-62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

VOLUME P.C.BOARD

IC, Q Q457 IC451 Q459 Q458



KEY BOARD UNIT

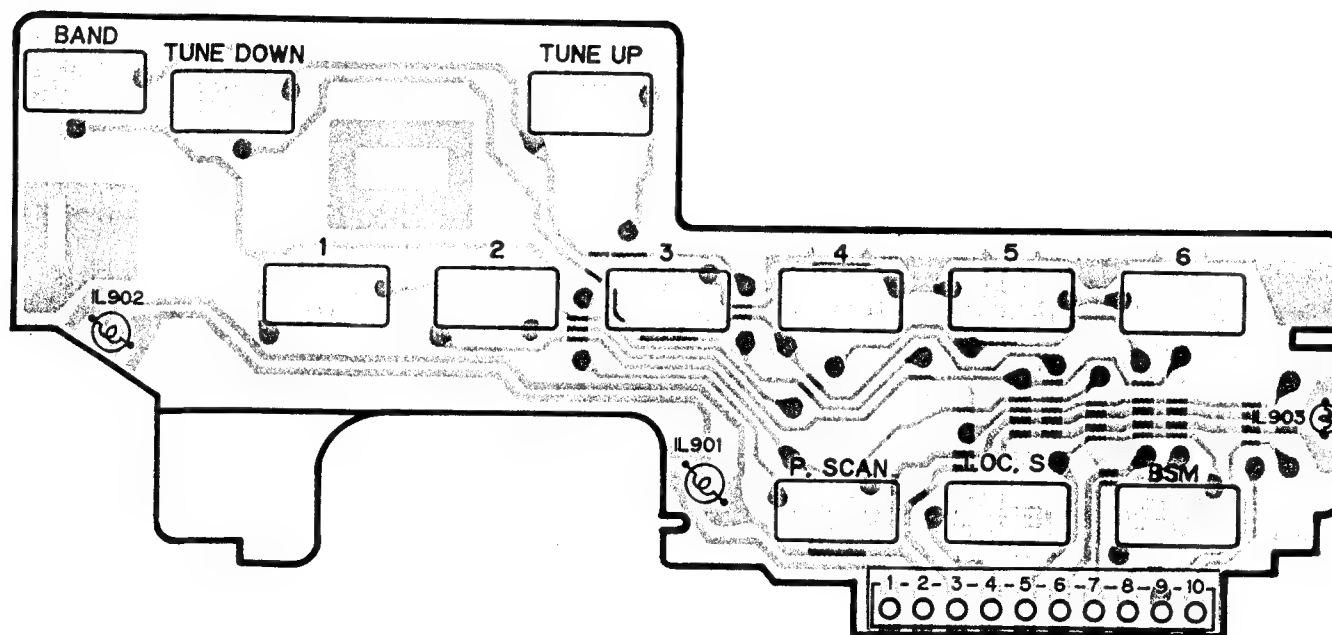
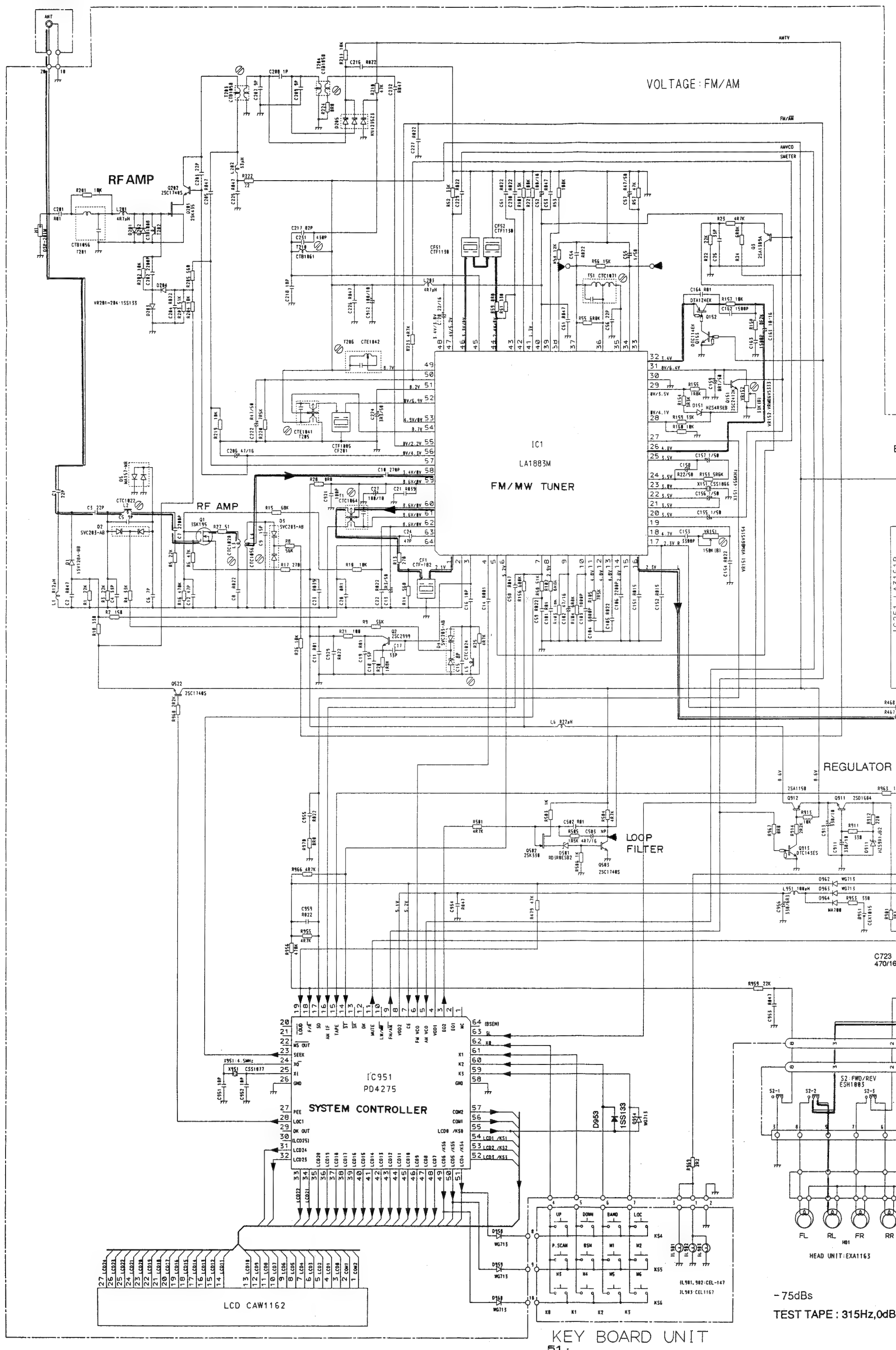


Fig. 17

17. SCHEMATIC CIRCUIT DIAGRAM (KEH-2400B)



NOTE

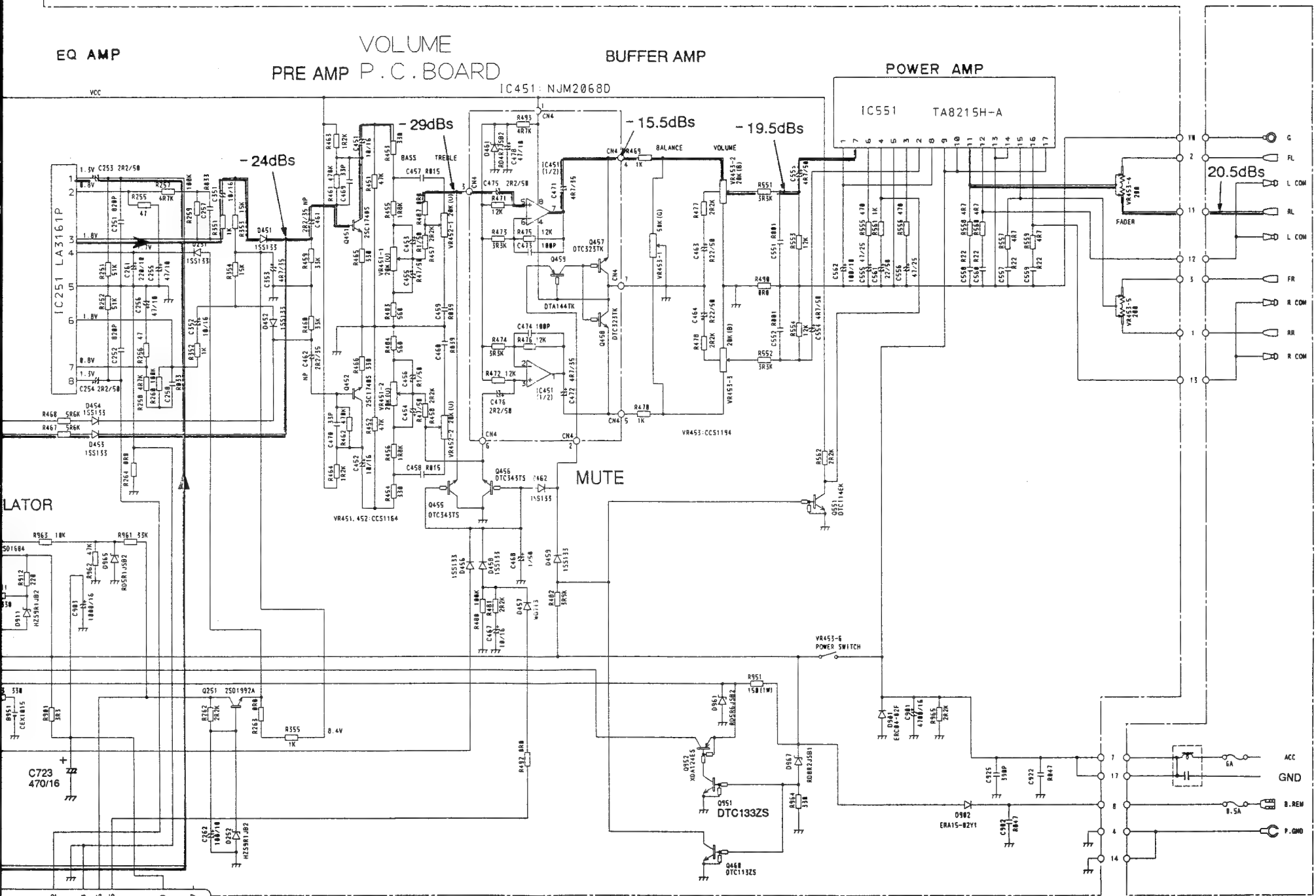
- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

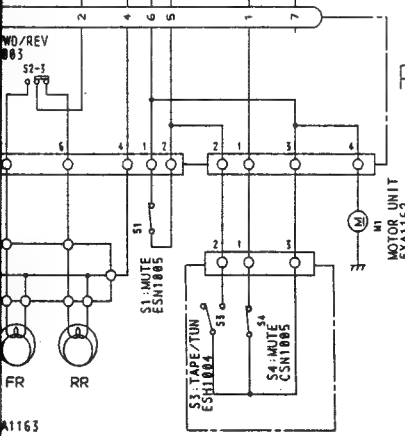
TUNER AMP UNIT

- Consists of
- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD

TUNER AMP P.C. BOARD

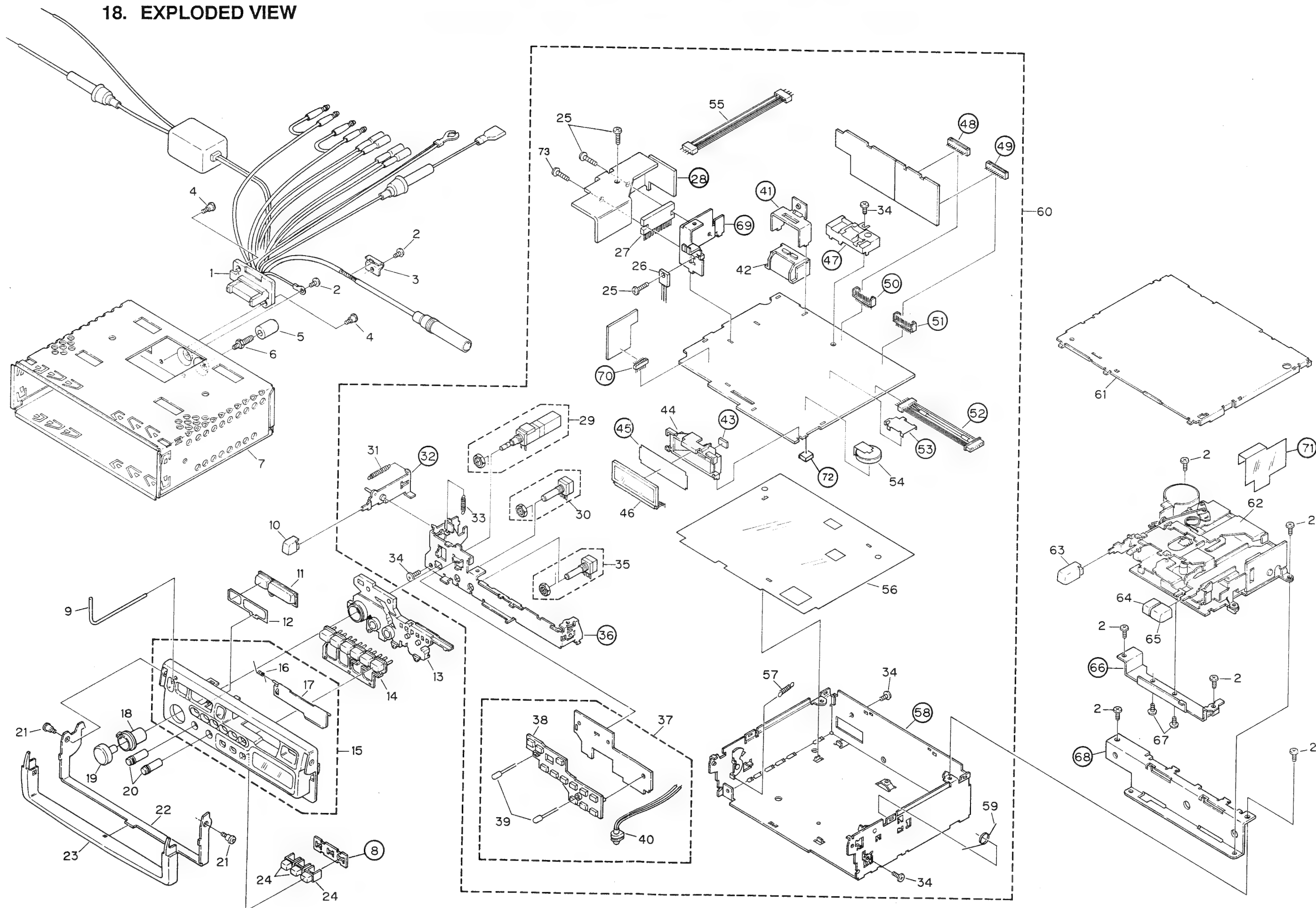


P.C. BOARD (A)



P.C. BOARD (B)

18. EXPLODED VIEW



NOTE:
 • The parts
 subject to
 • Because th
 not spare p

Parts List

Mark No. De

- 1 Co
- 2 Sc
- 3 Cl
- 4 Sc
- 5 Bu
- 6 Sc
- 7 Bo
- 8 Cu
- 9 Sh
- 10 Bu
- 11 Bu
- 12 Sp
- 13 Le
- 14 Bu
- 15 Gr
- 16 Sp
- 17 Do
- 18 Kn
- 19 Kn
- 20 Kn
- 21 Sc
- 22 Ha
- 23 Co
- 24 Bu
- 25 Sc
- 26 Tr
- 27 IC
- 28 He
- 29 Vo
- 30 Vo
- 31 Sp
- 32 Le
- 33 Sp
- 34 Sc
- 35 Vo
- 36 Ho
- 37 Ke

Fig. 19

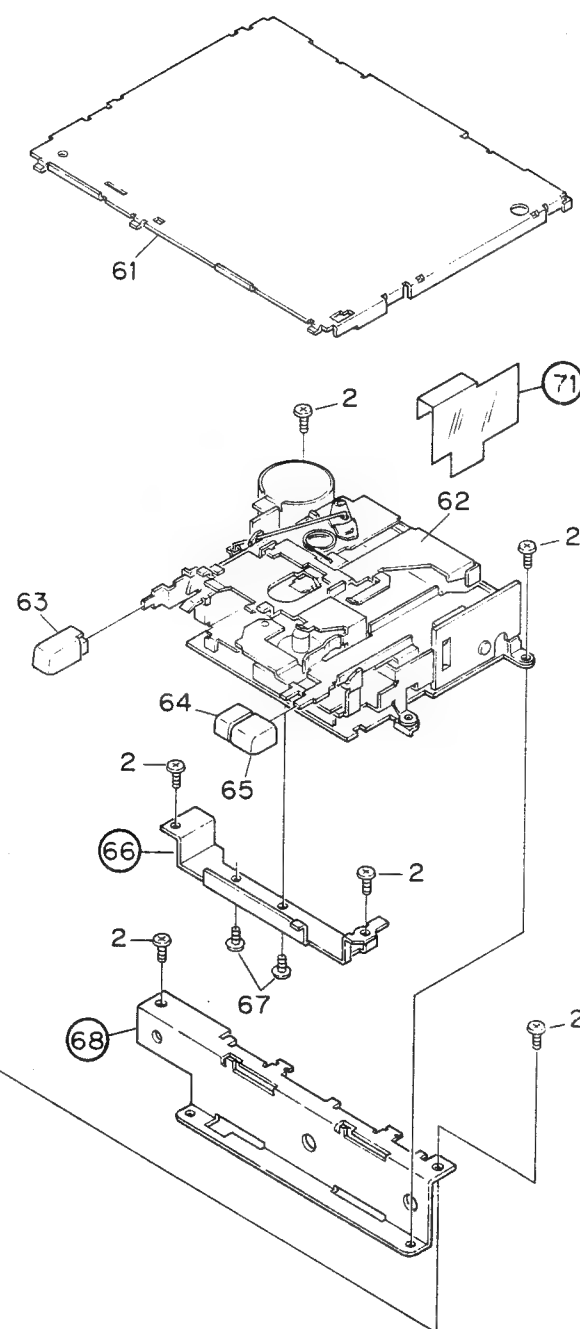
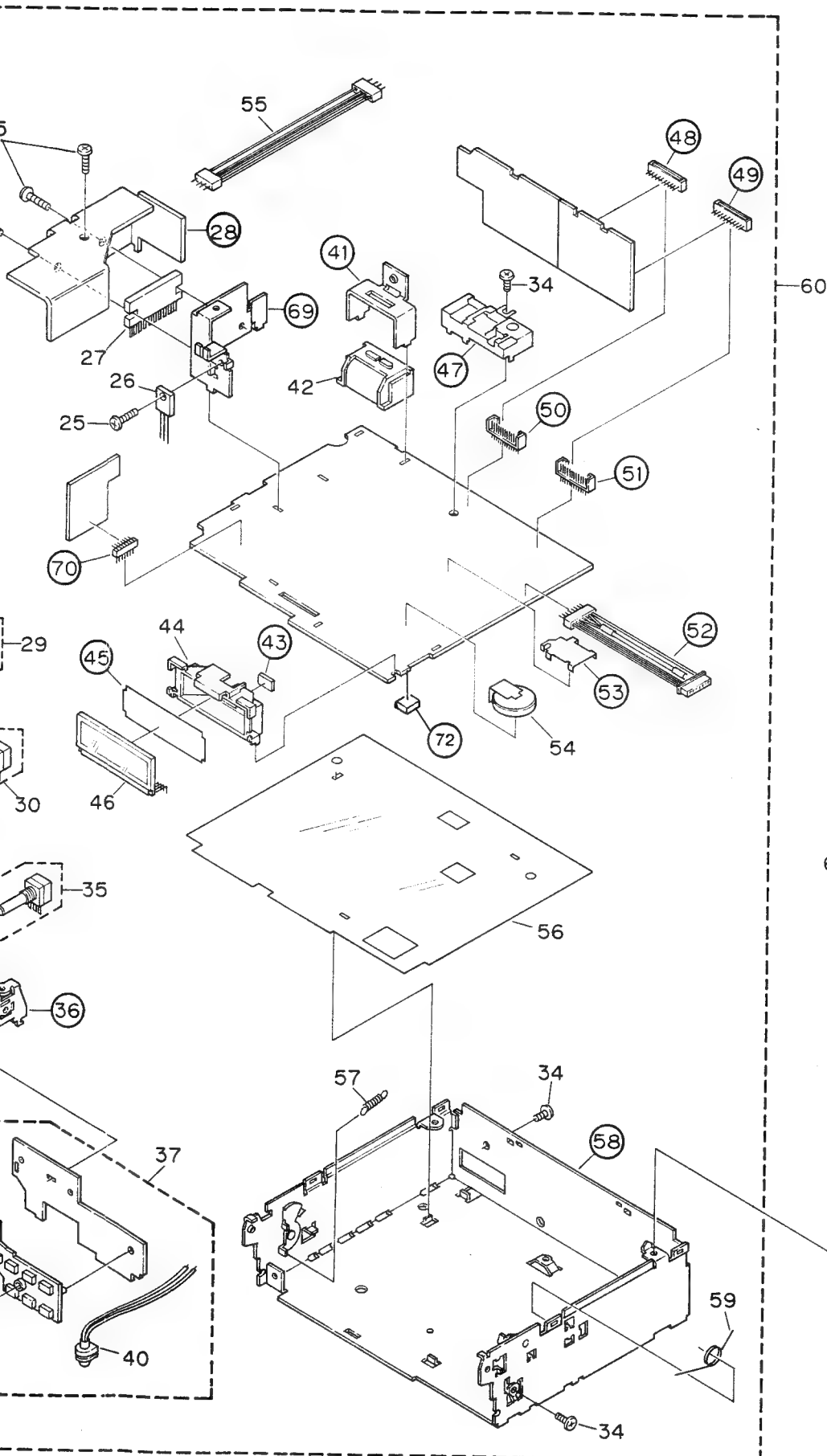


Fig. 19

NOTE:

- The parts marked with "●" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE3690	38	Switch	CNV2519
2	Screw	BSZ30P060FMC	39	Lamp(IL 901,902)	CEL1013
3	Clamper	CNC2982	40	Lamp(IL 903)	CEL1168
4	Screw	CBA1073	41	Holder	CNC3260
5	Bush	CNV1009	42	Connector	CKS1977
6	Screw	CBA1002	43	Spacer	CNM2914
7	Box	CNB1553	44	Holder	CNV2521
8	Cushion	CNM3180	45	Plate	CNM3285
9	Shaft	CLP1064	46	LCD	CAW1162
10	Button(QR EJECT)	CAC2548	47	Case	CNC3276
11	Button(BAND/TUNE)	CAC2544	48	Connector	CKS1997
12	Spacer	CNM3275	49	Connector	CKS1997
13	Lens	CNV3024	50	Plug	CKS1986
14	Button(1-6)	CAC2692	51	Plug	CKS1986
15	Grille Unit	CXA4457	52	Connector	CDE2884
16	Spring	CBH1397	53	Shield	CNC3275
17	Door	CAT1307	54	Battery(B 951)	CEX1015
18	Knob(FADER)	CAA1233	55	Connector	CDE3527
19	Knob(VOLUME)	CAA1234	56	Insulator	CNM3153
20	Knob(BASS/TREBLE)	CAA1235	57	Spring	CBH1447
21	Screw	CBA1165	58	Chassis Unit	CXA4524
22	Handle	CNC4007	59	Spring	CBH1366
23	Cover	CNV3022	● 60	Tuner Amp Assy	CWM2901
24	Button	CAC3097	61	Case	CNB1552
25	Screw	BSZ30P120FMC	● 62	Cassette Mechanism Assy	EXK1720
26	Transistor(Q 911)	2SD1684	63	Button(EJECT)	CAC2545
27	IC(IC 551)	TA8215H-A	64	Button(REW)	CAC2547
28	Heat Sink	CNC3896	65	Button(FF)	CAC2546
29	Volume(VOLUME, VR453)	CCS1193	66	Bracket	CNC3265
30	Volume(BASS, VR451)	CCS1164	67	Screw	BSZ26P060FMC
31	Spring	CBH1448	68	Bracket	CNC3264
32	Lever Unit	CXA4523	69	Holder	CNC3897
33	Spring	CBH-846	70	Plug	CKS1616
34	Screw	BSZ30P055FUC	71	Insulator	CNM3036
35	Volume(TREBLE, VR452)	CCS1164	72	Spacer	CNN-625
36	Holder Unit	CXA3709	73	Screw	BSZ30P100FMC
● 37	Key Board Unit	CWM2929			

- The KEH-3430B/EW, KEH-2400SDK/WG, KEH-2430B/EW and KEH-2400B/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-3400SDK/WG Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-3400SDK/WG Parts List is given on page 56.

Mark No. Description	KEH-3400SDK/WG	KEH-3430B/EW	KEH-2400SDK/WG	KEH-2430B/EW	KEH-2400B/EW
	Part No.	Part No.	Part No.	Part No.	Part No.
1 Cord Assy	CDE3690	CDE3435	CDE3690	CDE3435	CDE3690
14 Button(1-6)	CAC2692	CAC2692	CAC2670	CAC2670	CAC2670
15 Grille Unit	CXA4457	CXA4455	CXA4463	CXA4461	CXA4462
29 Volume(VOLUME, VR453	CCS1193	CCS1193	CCS1194	CCS1194	CCS1194
③ 37 Key Board Unit	CWM2929	CWM2929	CWM2929	CWM2929	CWM2931
39 Lamp(IL 901, 902)	CEL1013	CEL1013	CEL1013	CEL1013	CEL-147
40 Lamp(IL 903)	CEL1168	CEL1168	CEL1168	CEL1168	CEL1167
48 Connector	CKS1997	.....	CKS1997	.....	.....
49 Connector	CKS1997	CKS1997	.....	.....	.....
50 Plug	CKS1986	.....	CKS1986	.....	.....
51 Plug	CKS1986	CKS1986	.....	.....	.....
52 Connector	CDE2884	CDE2884	CDE3064	CDE3064	CDE3064
58 Chassis Unit	CXA4524	CXA4426	CXA4557	CXA4526	CXA4426
③ 60 Tuner Amp Assy	CWM2901	CWM2899	CWM2907	CWM2905	CWM2906
③ 62 Cassette Mechanism Assy	EXK1720	EXK1720	EXA1710	EXK1710	EXK1710

19. CASSETTE MECHANISM ASSY EXPLODED VIEW (KEH-3400SDK, KEH-3430B)

● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1204	41	Spring	EBH1363
2	Gear Unit	EXA1200	42	Motor Unit	EXA1162
3	Washer	CBF1037	43	Screw	PMS26P025FUC
4	Gear	ENV1230	44	Screw	CBA1054
5	Gear	ENV1203	45	Gathering P.C. Board	ENX1005
6	Gear	ENV1204	46	Switch	ESH1004
7	Gear	ENV1273	47	Switch	CSN1005
8	Gear	ENV1211	48	Screw	CBA1025
9	Sub Chassis Unit	EXA1197	49	Gear	ENV1229
10	Arm	ENV1210	50	Washer	CBF1038
11	Screw	BMZ20P025FMC	51	Belt	ENT1020
12	Spring	EBH1366	52	Gear	ENV1209
13	.....		53	Arm Unit	EXA1155
14	.....		54	Washer	YE30FUC
15	Shaft	ELA1266	55	Spring	EBH1310
16	Lever	ENC1269	56	Flywheel Unit	EXA1161
17	Washer	EBF1015	57	Belt	ENT1018
18	Gear	ENV1208	58	Arm	ENV1206
19	Spring	EBH1361	59	Spring	EBH1317
20	Spring	EBH1362	60	Gear	ENV1205
21	Lever	ENC1255	61	Chassis Unit	EXA1196
22	Spring	EBH1359	62	Screw	JFZ20P025FNI
23	Washer	YE25FUC	63	Bracket	ENC1250
24	Spring	EBH1358	64	Pulley	ENV1207
25	.....		65	Solenoid	EXP1010
26	Lever	ENC1256	66	Screw	EBA1023
27	Spring	EBH1373	67	Plug	CKS1055
28	Arm	ENC1248	68	Gathering P.C. Board	ENX1004
29	Spring	EBH1308	69	Switch	ESH1003
30	Washer	YE15FUC	70	Washer	WH23FMC
31	Arm Unit	EXA1198	71	Screw	BSZ23P040PMC
32	Spring	EBH1374	72	Screw	CBA1015
33	Frame	ENC1204	73	Head Unit	EXA1163
34	Arm	ENC1263	74	P.C. Board	ENP1042
35	.....		75	Switch	ESN1005
36	Holder	ENC1257	76	Washer	YE20FUC
37	Spring	EBH1364	77	Pinch Roller Unit	EXA1194
38	Lever	ENV1222	78	Washer	YE12FUC
39	Head Base Unit	EXA1203	79	Roller	ELA1247
40	Tube		80	Arm Unit	EXA1166

Mark No.	Description	Part No.
81	Screw	CBA1038
82	Arm	ENV1227
83	Spring	EBH1368
84	Arm	ENC1266
85	Spring	EBH1322
86	Lever	ENC1228
87	Spring	EBH1365
88	Lever	ENC1229
89	Arm Unit	EXA1158
90	Pinch Roller Unit	EXA1193
91	Spring	EBH1375
92	Arm Unit	EXA1157
93	Spring	EBH1345
94	Collar	ELA1267

● Cassette Mechanism Assy

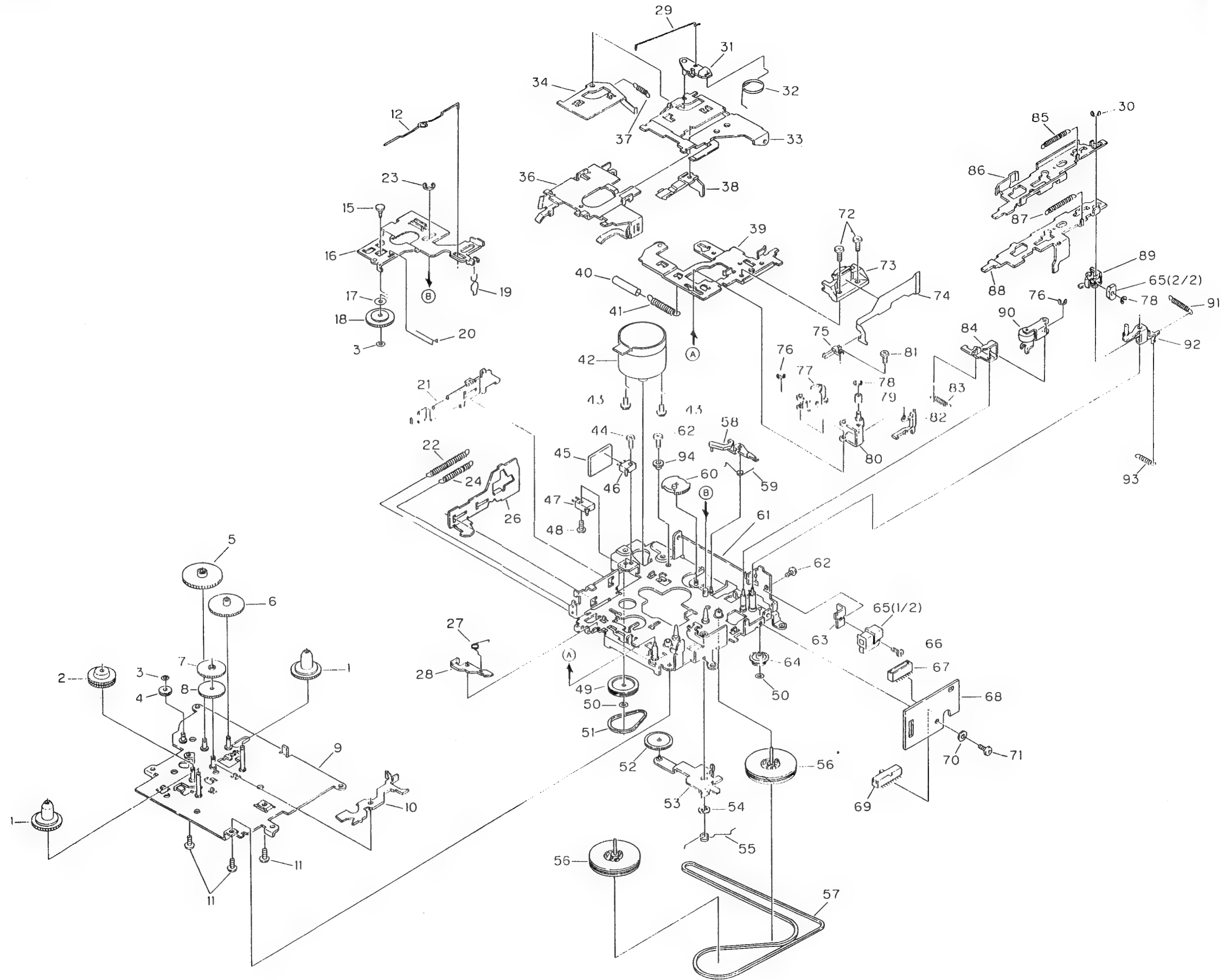


Fig. 20

20. CASSETTE MECHANISM ASSY EXPLODED VIEW (KEH-2400SDK, KEH-2430B, KEH-2400B)

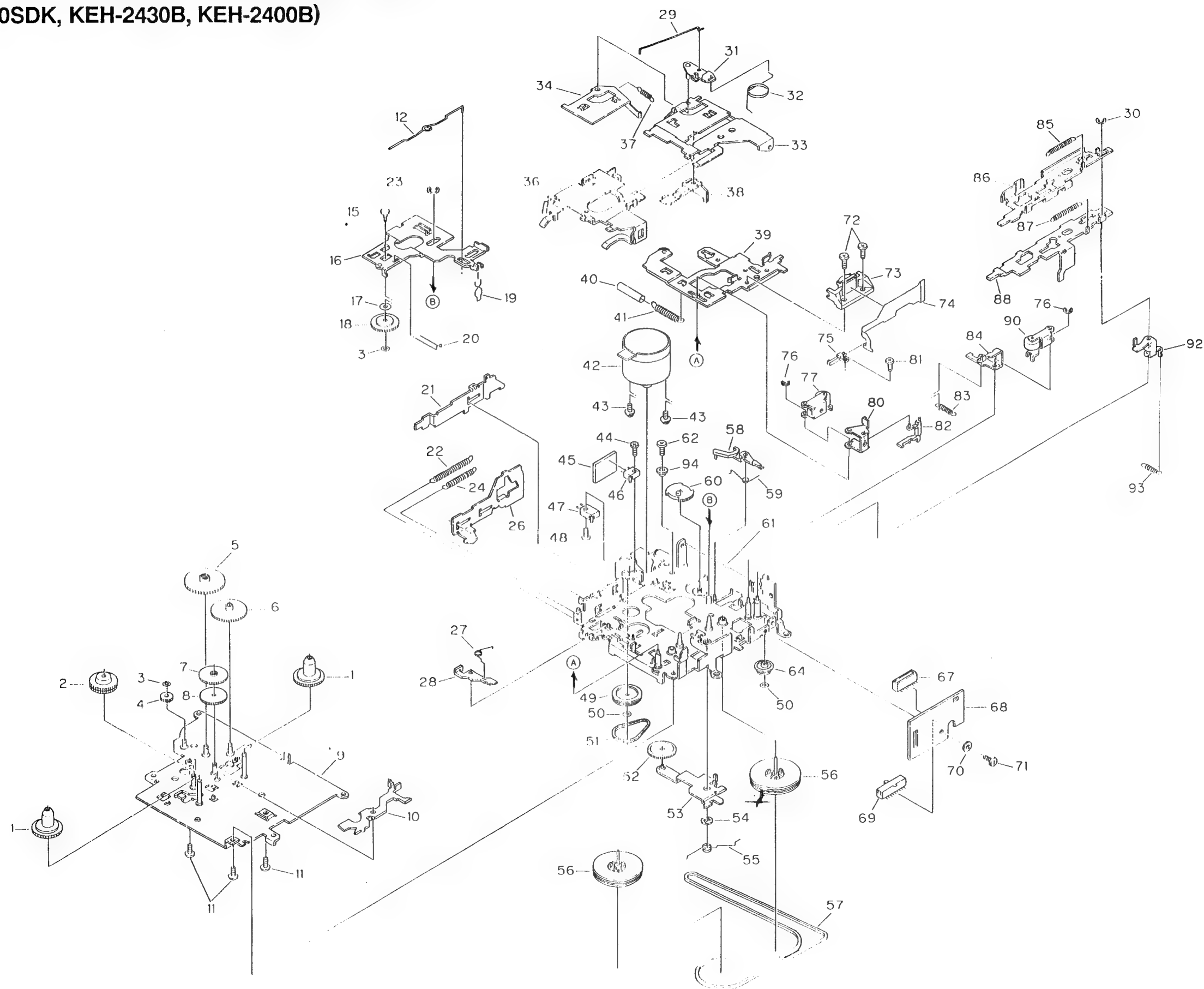


Fig. 21

● Parts List

	Mark No.	Description	Part No.	Mark No.	Description	Part No.
A		1 Reel Unit	EXA1104	41 Spring	EBH1363	
		2 Gear Unit	EXA1200	42 Motor Unit	EXA1162	
		3 Washer	CBF1037	43 Screw	PMS26P025FUC	
		4 Gear	ENV1230	44 Screw	CBA1054	
		5 Gear	ENV1203	45 Gathering P.C. Board	ENX1005	
		6 Gear	ENV1204	46 Switch	ESH1004	
		7 Gear	ENV1273	47 Switch	CSN1005	
		8 Gear	ENV1211	48 Screw	CBA1025	
		9 Sub Chassis Unit	EXA1197	49 Gear	ENV1229	
		10 Arm	ENV1210	50 Washer	CBF1038	
B		11 Screw	BMZ20P025FMC	51 Belt	ENT1020	
		12 Spring	EBH1366	52 Gear	ENV1209	
		13		53 Arm Unit	EXA1155	
		14		54 Washer	YE30FUC	
		15 Shaft	ELA1266	55 Spring	EBH1310	
		16 Lever	ENC1269	56 Flywheel Unit	EXA1161	
		17 Washer	EBF1015	57 Belt	ENT1018	
		18 Gear	ENV1208	58 Arm	ENV1206	
		19 Spring	EBH1361	59 Spring	EBH1317	
		20 Spring	EBH1362	60 Gear	ENV1205	
C		21 Lever	ENC1255	61 Chassis Unit	EXA1196	
		22 Spring	EBH1359	62 Screw	JFZ20P025FNI	
		23 Washer	YE25FUC	63		
		24 Spring	EBH1358	64 Pulley	ENV1207	
		25		65		
		26 Lever	ENC1256	66		
		27 Spring	EBH1373	67 Plug	CKS1055	
		28 Arm	ENC1248	68 Gathering P.C. Board	ENX1004	
		29 Spring	EBH1308	69 Switch	ESH1003	
		30 Washer	YE15FUC	70 Washer	WH23FMC	
D		31 Arm Unit	EXA1198	71 Screw	BSZ23P040FMC	
		32 Spring	EBH1374	72 Screw	CBA1015	
		33 Frame	ENC1204	73 Head Unit	EXA1163	
		34 Arm	ENC1263	74 P.C. Board	ENP1042	
		35		75 Switch	ESN1005	
		36 Holder	ENC1257	76 Washer	YE20FUC	
		37 Spring	EBH1364	77 Pinch Roller Unit	EXA1194	
		38 Lever	ENV1222	78		
		39 Head Base Unit	EXA1203	79		
		40 Tube		80 Arm	ENC1213	

Mark No.	Description	Part No.
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81	Screw	CBA1038
----	-------	---------

82	Arm	ENV1227
----	-----	---------

83	Spring	EBH1368
----	--------	---------

84	Arm	ENC1266
----	-----	---------

85	Spring	EBH1365
----	--------	---------

86	Lever	ENC1206
----	-------	---------

87	Spring	EBH1365
----	--------	---------

88	Lever	ENC1207
----	-------	---------

89	
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90	Pinch Roller Unit	EXA1193
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91	
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92	Arm	ENC1264
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93	Spring	EBH1367
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94	Collar	ELA1267
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21. PACKING METHOD

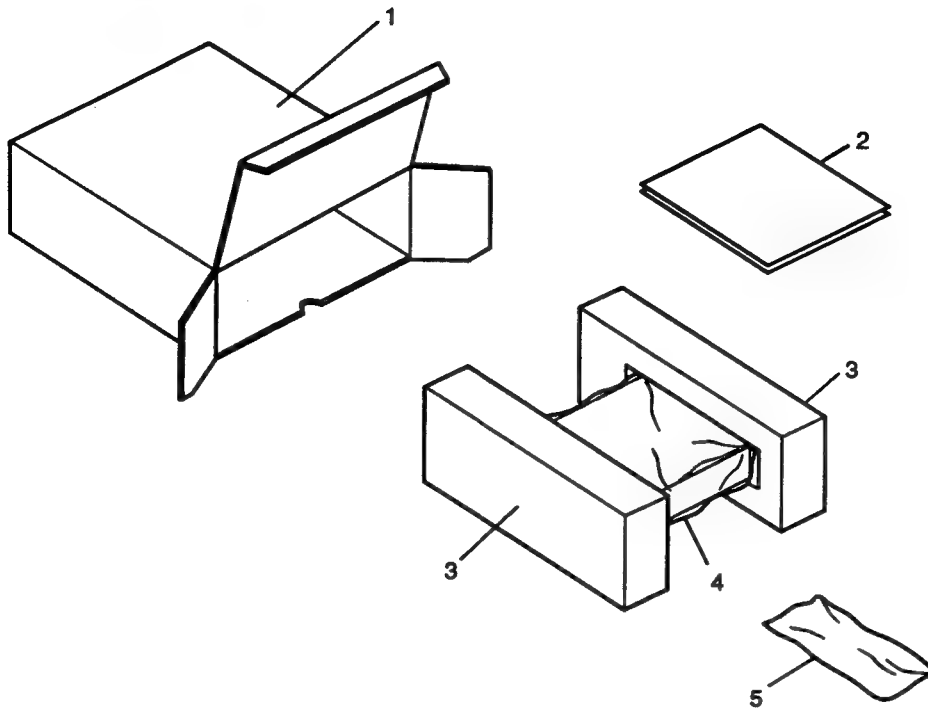


Fig. 22

● Parts List

*:Non spare part

Mark No.	Description	KEH-3400SDK/WG	KEH-3430B/EW	KEH-2400SDK/WG	KEH-2430B/EW	KEH-2400B/EW
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Carton	CHG2104	CHG2106	CHG2105	CHG2107	CHG2109
2-1	Owner's Manual	CRD1531	CRD1532	CRD1531	CRD1532	CRD1533
* 2-2	Card	CRY-062	CRY-062	CRY-062	CRY-062	CRY-062
* 2-3	Caution Card	CRN1007	.....	CRN1007	.....	.....
* 2-4	Passport	CRY1013	.....	CRY1013	.....	.....
3	Styrofoam	CHP1413	CHP1413	CHP1413	CHP1413	CHP1413
4	Cover	CEG1113	CEG1113	CEG1113	CEG1113	CEG1113
5	Accessory Assy	CEA1584	CEA1584	CEA1584	CEA1584	CEA1584

5 Accessory Assy CEA1584		
Mark No.	Description	Part No.
5-1	Screw(×1)	CBA-102
5-2	Screw(×1)	CBA1002
5-3	Strap	CNF-111
5-4	Bush	CNV1009
5-5	Nut(×2)	NF50PMC
5-6	Shaft	CLP1064
* 5-7	Polyethylene Bag	CEG1011

2-1 Owner's Manual

Part No.	Model	Language
CRD1531	KEH-3400SDK/WG KEH-2400SDK/WG	German, French
CRD1532	KEH-3430B/EW KEH-2430B/EW	English, French, German, Norwegian, Dutch, Spanish, Finnish, Swedish, Portuguese
CRD1533	KEH-2400B/EW	English, Spanish, Italian, Finnish, Swedish, Portuguese

22. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□□, RS1/10S□□□□

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : Tuner Amp P.C.Board(KEH-3400SDK)

MISCELLANEOUS

Circuit Symbol & No.	Part Name	Part No.
IC 1	LA1883M	LA1883M
IC 251	LA3161P	LA3161P
IC 551	TA8215H-A	TA8215H-A
IC 951	PD4275	PD4275
Q 1	3SK195	3SK195
Q 2	2SC2999	2SC2999
Q 3	2SA1309A	2SA1309A
Q 151	2SC2412K	2SC2412K
Q 152	DTA124EK	DTA124EK
Q 153	DTC114EK	DTC114EK
Q 201	2SK435	2SK435
Q 202	2SC1740S	2SC1740S
Q 251	2SD1992A	2SD1992A
Q 402	XDC124ES	XDC124ES
Q 451 452 453 454	2SC1740S	2SC1740S
Q 455 456	DTC343TS	DTC343TS
Q 460	DTC113ZS	DTC113ZS
Q 502	2SK330	2SK330
Q 503 522	2SC1740S	2SC1740S
Q 551	DTC114EK	DTC114EK
Q 707	2SC2412K	2SC2412K
Q 911	2SD1684	2SD1684
Q 912	2SA1150	2SA1150
Q 913	DTC143ES	DTC143ES
Q 951	XDC114ES	XDC114ES
Q 952	XDA124ES	XDA124ES
D 1	1SV128A-BB	1SV128A-BB
D 2 3 4	SVC203-AB	SVC203-AB
D 5	MA157-MR	MA157-MR
D 151	HZS4R3EB3	HZS4R3EB3
D 201 202 203 204	1SS133	1SS133
D 205	KV1235Z3	KV1235Z3
D 251	1SS133	1SS133
D 252 911	HZS9R1JB2	HZS9R1JB2
D 451 452 453 454 456 458 459 462 969	1SS133	1SS133
D 460	MA700	MA700
D 501	RD3R0ESB2	RD3R0ESB2
D 702	WG713	WG713
D 901	ERC04-02F	ERC04-02F
D 902	ERA15-02Y1	ERA15-02Y1

Circuit Symbol & No.	Part Name	Part No.
D 951 956 957 958 959 960 962 963 966		WG713
D 961		RD5R6JSB2
D 964		MA700
D 965		RD5R1JSB2
D 967		RD8R2JSB1
L 1	Inductor	CTF1065
L 2	Coil	CTC1022
L 3	Coil	CTC1020
L 4	Coil	CTC1056
L 5	OSC Coil	CTC1024
L 6	Inductor	LAUR22M
L 201	Ferrit-Inductor	LAU4R7K
L 202	Ferrit-Inductor	LAU330K
L 203	Ferrit-Inductor	CTF-161
L 701	Micro-Inductor	LAUR68M
L 951	Ferrit-Inductor	LAU101K
T 1	Coil	CTC1064
T 51	Coil	CTC1071
T 201	Coil	CTB1056
T 202	Coil	CTB1008
T 203 204	Coil	CTB1058
T 205	Coil	CTE1041
T 206	Coil	CTE1042
T 210	Coil	CTB1061
CF 1	Ceramic Filter	CTF-182
CF 51 52	Ceramic Filter	CTF1130
CF201	Filter	CTF1085
H 1	Surge Protector	DSP-201M
X 151	Ceramic Resonator	CSS1066
X 951	Crystal Resonator	CSS1077
VR151	Semi-fixed 150kΩ(B)	VRMB6VS154
VR152	Semi-fixed 33kΩ(B)	VRMB6VS333
VR451 452	Volume 20kΩ(U)	CCS1164
VR453	20kΩ(B), 50kΩ(G), 200Ω	CCS1193
B 951	Battery	CEX1015
	LCD	CAW1162

RESISTORS

Circuit Symbol & No.	Part Name	Part No.
R 1 3 5 22		RS1/10S223J
R 2		RD1/4PS151JL
R 4 159		RS1/10S333J
R 6		RD1/4PS473JL
R 8		RS1/10S563J

-----	Circuit Symbol & No.	Part Name	-----	Part No.	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	9			RD1/4PS563JL	R	480			RD1/4PS104JL
R	10 157 160			RS1/10S103J	R	481 485			RD1/4PS102JL
R	13			RD1/4PS271JL	R	482			RD1/4PS392JL
R	14			RS1/10S561J	R	483 484			RS1/10S561J
R	15			RS1/10S683J	R	487			RS1/10S0R0J
R	16			RS1/10S474J	R	489			RS1/10S563J
R	17			RS1/8S271J	R	490			RS1/10S2R2J
R	18 51			RS1/10S331J	R	491			RS1/10S273J
R	20 155			RS1/10S182J	R	492			RS1/8S0R0J
R	21			RS1/10S101J	R	501 955 966			RD1/4PS472JL
R	23			RD1/4PS472JL	R	503 506			RD1/4PS102JL
R	24			RD1/4PS682JL	R	504			RS1/10S472J
R	25			RS1/10S472J	R	505			RD1/4PS152JL
R	26			RD1/4PS103JL	R	551 552			RS1/10S332J
R	27			RS1/10S510J	R	553 554			RS1/10S123J
R	28 59			RS1/10S0R0J	R	555 556			RS1/10S391J
R	52			RD1/4PS333JL	R	557 558 559 560			RD1/4PS2R2JL
R	53			RD1/4PS104JL	R	561			RS1/10S102J
R	54			RD1/4PS123JL	R	562			RD1/4PS222JL
R	55 102 104			RS1/10S682J	R	732			RD1/4PS223JL
R	56			RD1/4PS153JL	R	734			RS1/8S271J
R	57			RS1/10S473J	R	735 736			RS1/10S102J
R	58			RS1/10S513J	R	737			RS1/8S473J
R	101			RS1/10S133J	R	738			RS1/8S103J
R	103			RS1/10S183J	R	739			RS1/10S104J
R	105			RS1/10S752J	R	740			RS1/8S0R0J
R	153			RD1/4PS562JL	R	901			RD1/2PS3R3JL
R	154			RS1/10S332J	R	911 964			RD1/4PS331JL
R	156			RS1/10S684J	R	912			RD1/4PS221JL
R	158			RS1/10S822J	R	913 967			RS1/10S103J
R	201 202 211			RS1/10S103J	R	914 965			RS1/10S222J
R	203			RD1/4PS513JL	R	951			RS1P151JL
R	204 219			RD1/4PS103JL	R	953			RS1/10S331J
R	205			RS1/10S561J	R	956			RD1/4PS474JL
R	210			RS1/10S473J	R	959			RS1/10S223J
R	220			RD1/4PS752JL	R	960			RD1/4PS222JL
R	221			RS1/10S104J	R	961			RD1/4PS333JL
R	222			RD1/4PS220JL	R	962			RD1/4PS473JL
R	223			RS1/10S472J	R	963			RD1/4PS103JL
R	224			RS1/10S0R0J	R	969			RS1/10S2R2J
R	251 252			RS1/10S513J	R	970			RS1/8S0R0J
R	255 256			RS1/10S470J	CAPACITORS				
R	257 258			RS1/10S472J	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	259 260			RS1/10S104J	C	1 3 56			CCSQCH220J50
R	262			RS1/10S222J	C	2 53 58			CKSQYF473Z50
R	263			RS1/8S0R0J	C	4 25			CCSQCH330J50
R	264			RS1/10S0R0J	C	5			CCSQTH090D50
R	405			RD1/4PS103JL	C	6			CCSQTH070D50
R	407			RS1/10S0R0J	C	7			CKSQYB222K50
R	451 452 479			RS1/10S473J	C	8 22 51 54 59 105 154			CKSQYB223K50
R	453 454 465 466			RS1/10S331J	C	9			CCSQTH150J50
R	455			RD1/4PS182JL	C	10			CCSQSL271J50
R	456			RS1/10S182J	C	11 19 101 164			CKSQYB103K50
R	457			RD1/4PS222JL	C	12 24			CCSQCH470J50
R	458 477 478			RS1/10S222J	C	13			CEA3R3M50LS
R	459 460			RS1/10S333J	C	14 165			CKSQYB102K50
R	461 462			RS1/10S474J	C	15			CCSQCH080D50
R	463 464			RS1/8S132J	C	16			CCSQCH100D50
R	467 468			RD1/4PS562JL	C	17			CCSQCH330J50
R	469 470			RS1/10S271J					

-----	Circuit Symbol & No.	Part Name	-----	Part No.	-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 18				CCSQCH150J50	C 901				CEHAQ472M16
C 20				CKSQYF104Z25	C 902				CKSQYF473Z50
C 21				CKSYB393K25	C 903				CEA331M16L2
C 23				CKSYB393K25	C 911 913	330 μ F/10V			CCH1128
C 27 52				CEA101M10LS	C 912				CEA101M10LS
C 55				CEA010M50LS2	C 921				CCSQCH101J50
C 57				CEAR47M50LS2	C 922				CKSYF473Z50
C 61				CKSYB473K50	C 923 924 926 927				CCSQCH101J50
C 102				CEA470M16LS	C 925				CCSQCH391J50
C 103				CKSQYB182K50	C 929				CKSQYB223K50
C 104				CKSQYB682K50	C 951 952				CCSQCH100D50
C 106				CKSQYB222K50	C 954				CKSYB473K50
C 151 152				CKSQYB153K50	C 955				CKDYF223Z50
C 153				CKSQYB332K50	C 956				CEA331M6R3L2
C 155 156 157				CEA010M50LS2	C 957				CEA2R2M50LS2
C 158				CEAR22M50LS2	C 958				CEA220M16LS
C 159				CEA0R1M50LS2	C 959				CKSYB223K50
C 161				CEA100M16LS2	C 960				CKSQYF473Z50
C 162 163				CKSQYB152K50	C 961				CKDYB472K50
C 201				CKSQYB103K50					
C 202				CKSQYB222K50	Unit Number :				
C 203				CCSQCH220J50	Unit Name : Tuner Amp P.C.Board(KEH-3430B)				
C 204 216 227 229 230				CKSQYB223K50	MISCELLANEOUS				
C 205 226				CKSQYF473Z50	-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 206				CEA470M16LS	IC 1				LA1883M
C 207 209				CCSQTH090D50	IC 251				LA3161P
C 208				CCSQCH010C50	IC 551				TA8215H-A
C 217				CCSQRH820J50	IC 951				PD4275
C 218				CCSQUJ180J50	Q 1				3SK195
C 222				CEAR47M50LS2	Q 2				2SC2999
C 224				CEA3R3M50LS	Q 3				2SA1309A
C 225 232				CKSQYB473K25	Q 151				2SC2412K
C 228				CEA220M16LS	Q 152				DTA124EK
C 231				CQPA431G2A	Q 153				DTC114EK
C 251 252				CKSQYB821K50	Q 201				2SK435
C 253 254				CEA2R2M50LS2	Q 202 203 204 205 206 207				2SC1740S
C 255				CEA470M10LS	Q 251				2SD1992A
C 256				CEHAQ470M25	Q 402				XDC124ES
C 257 258				CKSQYB333K50	Q 451 452 453 454				2SC1740S
C 261				CEA221M10L2	Q 455 456				DTC343TS
C 262				CEHAQ101M10	Q 460				DTC113ZS
C 451 452 467 477				CEA100M16LS2	Q 502				2SK330
C 453 454				CEA0R1M50LS2	Q 503 522				2SC1740S
C 455 456				CEAR47M50LS2	Q 504				DTC143ES
C 457 458				CKSQYB153K50	Q 505				DTC124ES
C 459 460				CKSYB393K25	Q 551				DTC114EK
C 461 462				CEALNP2R2M35	Q 911				2SD1684
C 463 464				CEAR22M50LS2	Q 912				2SA1150
C 468				CEA0R1M50LS2	Q 913				DTC143ES
C 469 470				CCSQCH330J50	Q 951				DTC113ZS
C 502				CKSQYB103K50	Q 952				XDA124ES
C 503	4.7 μ F/16V			CCH1005	D 1				1SV128A-BB
C 551 552				CKSQYB102K50	D 2 3 4	Variable Capacitance Diode			SVC203-AB
C 553 554				CEHAQ4R7M50	D 5				MA157-MR
C 555 556				CEHAQ470M25	D 151				HZS4R3EB3
C 557 558 559 560				CFTNA224J50	D 201 202 203 204				1SS133
C 561				CEHAQ220M50	D 205				KV1235Z3
C 562				CEHAQ101M10	D 251				1SS133
C 723				CEA471M16L2	D 252 911				HZS9R1JB2
C 725				CCSQCH330J50					

-----	Circuit Symbol	& No.	Part Name	-----	Part No.	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
D 451	452	453	454	456	457	458	459	462	1SS133	R 23	RD1/4PS472JL
D 460									MA700	R 24	RD1/4PS682JL
D 501									RD3R0ESB2	R 25	RS1/10S472J
D 901									ERC04-02F	R 26	RD1/4PS103JL
D 902									ERA15-02Y1	R 27	RS1/10S510J
D 956	957	958	959	960	962	963			WG713	R 28	RS1/10S0R0J
D 961									RD5R6JSB2	R 52	RD1/4PS333JL
D 964									MA700	R 53	RD1/4PS104JL
D 965									RD5R1JSB2	R 54	RD1/4PS123JL
D 967									RD6R2JSB1	R 55	RS1/10S682J
L 1									Inductor	CTF1065	RD1/4PS153JL
L 2									Coil	CTC1022	RS1/10S473J
L 3									Coil	CTC1020	RS1/10S513J
L 4									Coil	CTC1056	RS1/10S133J
L 5									OSC Coil	CTC1024	RS1/10S183J
L 6									Inductor	LAUR22M	RS1/10S752J
L 201									Ferr-Inductor	LAU4R7K	RD1/4PS562JL
L 202									Ferr-Inductor	LAU330K	RS1/10S332J
L 203									Ferr-Inductor	CTF-161	RS1/10S684J
L 951									Ferr-Inductor	LAU101K	RS1/10S822J
T 1									Coil	CTC1064	RS1/10S103J
T 51									Coil	CTC1071	RD1/4PS513JL
T 201									Coil	CTB1056	RD1/4PS103JL
T 202									Coil	CTB1079	RS1/10S561J
T 203	204								Coil	CTB1058	RD1/4PS474JL
T 205									Coil	CTE1041	RD1/4PS561JL
T 206									Coil	CTE1042	RS1/10S473J
T 207									Coil	CTB1077	RD1/4PS104JL
T 208	209								Coil	CTB1002	RS1/10S821J
T 210									Coil	CTB1060	RS1/10S474J
CF 1									Ceramic Filter	CTF-182	RD1/4PS752JL
CF 51	52								Ceramic Filter	CTF1130	RS1/10S104J
CF201									Filter	CTF1085	RD1/4PS220JL
H 1									Surge Protector	DSP-201M	RS1/10S472J
X 151									Ceramic Resonator	CSS1066	RS1/10S513J
X 951									Crystal Resonator	CSS1077	RS1/10S470J
VR151									Semi-fixed 150kΩ(B)	VRMB6VS154	RS1/10S472J
VR152									Semi-fixed 33kΩ(B)	VRMB6VS333	RS1/10S104J
VR451	452								Volume 20kΩ(U)	CQS1164	RS1/10S222J
VR453	Volume/Switch								20kΩ(B),50kΩ(G),200Ω	CCS1193	RS1/8S0R0J
B 951									Battery	CEX1015	RS1/10S0R0J
									LCD	CAW1162	RD1/4PS103JL
RESISTORS											
-----	Circuit Symbol	& No.	Part Name	-----	Part No.	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 1	3	5	22						RS1/10S223J	R 455	RD1/4PS182JL
R 2									RD1/4PS151JL	R 456	RS1/10S182J
R 4	159								RD1/10S333J	R 457	RD1/4PS222JL
R 6									RD1/4PS473JL	R 458	RS1/10S222J
R 8									RS1/10S563J	R 459	RS1/10S333J
R 9									RD1/4PS563JL	R 461	RS1/10S474J
R 10	157	160							RS1/10S103J	R 463	RS1/8S122J
R 13									RD1/4PS271JL	R 467	RD1/4PS562JL
R 14									RS1/10S561J	R 469	RS1/10S102J
R 15									RS1/10S683J	R 480	RD1/4PS104JL
R 16									RS1/10S474J	R 481	RD1/4PS222JL
R 17									RS1/8S271J	R 482	RD1/4PS392JL
R 18	51								RS1/10S331J	R 483	RS1/10S561J
R 20	155								RS1/10S182J	R 487	RS1/10S0R0J
R 21									RS1/10S101J	R 489	RS1/10S563J

Circuit Symbol & No.	Part Name	Part No.	Circuit Symbol & No.	Part Name	Part No.
R 490		RS1/10S0R0J	C 104		CKSQYB682K50
R 491		RS1/10S273J	C 106		CKSQYB222K50
R 492		RS1/8S0R0J	C 151 152		CKSQYB153K50
R 501 502		RD1/4PS222JL	C 153		CKSQYB332K50
R 503 506		RD1/4PS102JL	C 155 156 157		CEA010M50LS2
R 504		RS1/10S472J	C 158		CEAR22M50LS2
R 505		RD1/4PS152JL	C 159		CEA0R1M50LS2
R 507		RD1/4PS331JL	C 161		CEA100M16LS2
R 551 552		RS1/10S332J	C 162 163		CKSQYB152K50
R 553 554		RS1/10S123J	C 201		CKSQYB103K50
R 555 556		RS1/10S471J	C 202		CKSQYB222K50
R 557 558 559 560		RD1/4PS4R7JL	C 203		CCSQCH220J50
R 561		RS1/10S102J	C 204 217 227 229 230		CKSQYB223K50
R 562		RD1/4PS222JL	C 205 226		CKSQYF473Z50
R 901		RD1/2PS3R3JL	C 206		CEA470M16LS
R 911 964		RD1/4PS331JL	C 207 209		CCSQTH090D50
R 912		RD1/4PS221JL	C 208		CCSQCH010C50
R 913		RS1/10S103J	C 210 211 220 221		CKSQYF473Z50
R 914 965		RS1/10S222J	C 212		CCSQRH101J50
R 951		RS1P151JL	C 213		CCSQCH180J50
R 953		RS1/10S331J	C 214		CQPA331G2A
R 955 966		RD1/4PS472JL	C 215		CCSQRH820J50
R 956		RD1/4PS474JL	C 216		CKSQYB103K50
R 959		RS1/10S223J	C 218		CCSQWJ150J50
R 960		RD1/4PS222JL	C 219		CCSQWJ470J50
R 961		RD1/4PS333JL	C 222		CEAR47M50LS2
R 962		RD1/4PS473JL	C 224		CEA3R3M50LS
R 963		RD1/4PS103JL	C 225 232		CKSQYB473K25
R 967		RS1/10S0R0J	C 228		CEA220M16LS
R 969		RS1/10S2R2J	C 251 252		CKSQYB821K50
R 970		RS1/8S0R0J	C 253 254		CEA2R2M50LS2
CAPACITORS			C 255		CEA470M10LS
			C 256		CEA470M10L2
			C 257 258		CKSQYB333K50
			C 261		CEA221M10L2
C 1 3 56		CCSQCH220J50	C 262		CEA101M10L2
C 2 53 58		CKSQYF473Z50	C 451 452 467 477		CEA100M16LS2
C 4 25		CCSQCH330J50	C 453 454		CEA0R1M50LS2
C 5		CCSQTH090D50	C 455 456		CEAR47M50LS2
C 6		CCSQTH070D50	C 457 458		CKSQYB153K50
C 7		CKSQYB222K50	C 459 460		CKSYB393K25
C 8 22 51 54 59 105 154		CKSQYB223K50	C 461 462		CEALNP2R2M35
C 9		CCSQTH150J50	C 463 464		CEAR22M50L2
C 10		CCSQSL271J50	C 468		CEA010M50LS2
C 11 19 101 164		CKSQYB103K50	C 469 470		CCSQCH330J50
C 12 24		CCSQCH470J50	C 501		CEAR47M50LS2
C 13		CEA3R3M50LS	C 502		CKSQYB103K50
C 14		CKSQYB102K50	C 503	4.7 μ F/16V	CCH1005
C 15		CCSQCH080D50	C 551 552		CKSQYB102K50
C 16		CCSQCH100D50	C 553 554		CEHAQ4R7M50
C 17		CCSQCH330J50	C 555 556		CEHAQ470M25
C 18		CCSQCH150J50	C 557 558 559 560		CFTNA224J50
C 20		CKSQYF104Z25	C 561		CEHAQ220M50
C 21		CKSYB393K25	C 562		CEHAQ101M10
C 23		CKSYB393K25	C 901		CEHAQ472M16
C 27 52		CEA101M10LS	C 902		CKSQYF473Z50
C 55		CEA010M50LS2	C 903		CEA102M16L2
C 57		CEAR47M50LS2	C 911 913	330 μ F/10V	CCH1128
C 61		CKSYB473K50	C 912		CEA101M10LS
C 102		CEA470M16LS	C 921		CCQCH101J50
C 103		CKSQYB182K50			

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 929				CKSQYB223K50
C 951 952				CCSQCH100D50
C 953				CKSQYF473Z50
C 954				CKSYB473K50
C 955				CKDYF223Z50
C 956				CEA331M6R3L2
C 959				CKSYB223K50

Unit Number :

Unit Name : Tuner Amp P.C.Board(KEH-2400B)

MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC 1				LA1883M
IC 251				LA3161P
IC 551				TA8215H-A
IC 951				PD4275
Q 1				3SK195
Q 2				2SC2999
Q 3				2SA1309A
Q 151				2SC2412K
Q 152				DTA124EK
Q 153				DTC114EK
Q 201				2SK435
Q 202				2SC1740S
Q 251				2SD1992A
Q 451 452				2SC1740S
Q 455 456				DTC343TS
Q 460				DTC113ZS
Q 502				2SK330
Q 503 522				2SC1740S
Q 551				DTC114EK
Q 911				2SD1684
Q 912				2SA1150
Q 913				DTC143ES
Q 951				DTC113ZS
Q 952				XDA124ES
D 1				1SV128A-BB
D 2 3 4	Variable Capacitance Diode			SVC203-AB
D 5				MA157-MR
D 151				HZS4R3EB3
D 201 202 203 204				1SS133
D 205	Variable Capacitance Diode			KV1235Z3
D 251				1SS133
D 252 911				HZS9R1JB2
D 451 452 453 454 456 457 458 459 462 953				1SS133
D 501				RD3R0ESB2
D 901				ERC04-02F
D 902				ERA15-02Y1
D 958 959 960 962 963				WG713
D 961				RD5R6JSB2
D 964				MA700
D 965				RD5R1JSB2
D 967				RD6R2JSB1
L 1	Inductor			CTF1065
L 2	Coil			CTC1022
L 3	Coil			CTC1020
L 4	Coil			CTC1056

-----	Circuit Symbol & No.	Part Name	-----	Part No.
L 5		OSC Coil		CTC1024
L 6		Inductor		LAUR22M
L 201		Ferr-Inductor		LAU4R7K
L 202		Ferr-Inductor		LAU330K
L 203		Ferr-Inductor		CTF-161
L 951		Ferr-Inductor		LAU101K
T 1		Coil		CTC1064
T 51		Coil		CTC1071
T 201		Coil		CTB1056
T 202		Coil		CTB1008
T 203 204		Coil		CTB1058
T 205		Coil		CTE1041
T 206		Coil		CTE1042
T 210		Coil		CTB1061
CF 1		Ceramic Filter		CTF-182
CF 51 52		Ceramic Filter		CTF1130
CF201		Filter		CTF1085
H 1		Surge Protector		DSP-201M
X 151		Ceramic Resonator		CSS1066
X 951		Crystal Resonator		CSS1077
VR151		Semi-fixed 150k Ω (B)		VRMB6VS154
VR152		Semi-fixed 33k Ω (B)		VRMB6VS333
VR451 452		Volume 20k Ω (U)		CCS1164
VR453	Volume/Switch	20k Ω (B),50k Ω (G),200 Ω		CCS1194
B 951		Battery		CEX1015
		LCD		CAW1162

RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R 1 3 5 22				RS1/10S223J
R 2				RD1/4PS151JL
R 4 159				RS1/10S333J
R 6				RD1/4PS473JL
R 8				RS1/10S563J
R 9				RD1/4PS563JL
R 10 157 160				RS1/10S103J
R 13				RD1/4PS271JL
R 14				RS1/10S561J
R 15				RS1/10S683J
R 16				RS1/10S474J
R 17				RS1/8S271J
R 18 51				RS1/10S331J
R 20 155				RS1/10S182J
R 21				RS1/10S101J
R 23				RD1/4PS472JL
R 24				RD1/4PS682JL
R 25				RS1/10S472J
R 26				RD1/4PS103JL
R 27				RS1/10S510J
R 28 59				RS1/10S0R0J
R 52				RD1/4PS333JL
R 53				RD1/4PS104JL
R 54				RD1/4PS123JL
R 55 102 104				RS1/10S682J
R 56				RD1/4PS153JL
R 57				RS1/10S473J
R 58				RS1/10S513J
R 101				RS1/10S133J
R 103				RS1/10S183J

-----	Circuit Symbol & No.	Part Name	-----	Part No.	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R 105				RS1/10S752J	R 956				RD1/4PS474JL
R 153				RD1/4PS562JL	R 959				RS1/10S223J
R 154				RS1/10S332J	R 960				RD1/4PS222JL
R 156				RS1/10S684J	R 961				RD1/4PS333JL
R 158				RS1/10S822J	R 962				RD1/4PS473JL
R 201 202 211				RS1/10S103J	R 963				RD1/4PS103JL
R 203				RD1/4PS513JL	R 967				RS1/10S0R0J
R 204 219				RD1/4PS103JL	R 969				RS1/10S2R2J
R 205				RS1/10S561J	R 970				RS1/8S0R0J
R 210				RS1/10S473J	CAPACITORS				
R 220				RD1/4PS752JL	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R 221				RS1/10S104J	C 1	3 56			CCSQCH220J50
R 222				RD1/4PS220JL	C 2	53 58			CKSQYF473Z50
R 223				RS1/10S472J	C 4	25			CCSQCH330J50
R 224				RS1/10S0R0J	C 5				CCSQTH090D50
R 251 252				RS1/10S513J	C 6				CCSQTH070D50
R 255 256				RS1/10S470J	C 7				CKSQYB222K50
R 257 258				RS1/10S472J	C 8	22 51 54 59 105 154			CKSQYB222K50
R 259 260				RS1/10S104J	C 9				CCSQTH150J50
R 262				RS1/10S222J	C 10				CCSQL271J50
R 263				RS1/8S0R0J	C 11	19 101 164			CKSQYB103K50
R 264				RS1/10S0R0J	C 12	24			CCSQCH470J50
R 351 352 355				RD1/4PS102JL	C 13				CEA3R3M50LS
R 353 354				RD1/4PS153JL	C 14				CKSQYB102K50
R 451 452 479				RS1/10S473J	C 15				CCSQCH080D50
R 453 454 465 466				RS1/10S331J	C 16				CCSQCH100D50
R 455				RD1/4PS182JL	C 17				CCSQCH330J50
R 456				RS1/10S182J	C 18				CCSQCH150J50
R 457				RD1/4PS222JL	C 20				CKSQYF104Z25
R 458 477 478				RS1/10S222J	C 21				CKSYB393K25
R 459 480				RS1/10S333J	C 23				CKSYB393K25
R 481 482				RS1/10S474J	C 27	52			CEA101M10LS
R 483 484				RS1/8S122J	C 55				CEA010M50LS2
R 487 488				RD1/4PS103JL	C 57				CEAR47M50LS2
R 489 470				RS1/10S102J	C 61				CKSYB473K50
R 480				RD1/4PS104JL	C 102				CEA470M16LS
R 481				RD1/4PS222JL	C 103				CKSQYB182K50
R 482				RD1/4PS392JL	C 104				CKSQYB682K50
R 483 484				RS1/10S561J	C 106				CKSQYB222K50
R 487				RS1/10S0R0J	C 151	152			CKSQYB153K50
R 490				RS1/10S0R0J	C 153				CKSQYB332K50
R 492				RS1/8S0R0J	C 155	156 157			CEA010M50LS2
R 501				RD1/4PS472JL	C 158				CEAR22M50LS2
R 503 506				RD1/4PS102JL	C 159				CEA0R1M50LS2
R 504				RS1/10S472J	C 161				CEA100M16LS2
R 505				RD1/4PS152JL	C 162	163			CKSQYB152K50
R 551 552				RS1/10S332J	C 201				CKSQYB103K50
R 553 554				RS1/10S123J	C 202				CKSQYB222K50
R 555 556				RS1/10S471J	C 203				CCSQCH220J50
R 557 558 559 560				RD1/4PS4R7JL	C 204	227 229 230			CKSQYB223K50
R 561				RS1/10S102J	C 205	226			CKSQYF473Z50
R 562				RD1/4PS222JL	C 206				CEA470M16LS
R 901				RD1/2PS3R3JL	C 207	209			CCSQTH090D50
R 911 964				RD1/4PS331JL	C 208				CCSQCH010C50
R 912				RD1/4PS221JL	C 216				CKSQYB223K50
R 913				RS1/10S103J	C 217				CKSORH820J50
R 914 965				RS1/10S222J	C 218				CCSQW180J50
R 951				RS1P151JL					
R 953				RS1/10S331J					
R 955 966				RD1/4PS472JL					

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	222		CEAR47M50LS2	
C	224		CEA3R3M50LS	
C	225 232		CKSQYB473K25	
C	228		CEA220M16LS	
C	231		CQPA431G2A	
C	251 252		CKSQYB821K50	
C	253 254		CEA2R2M50LS2	
C	255		CEA470M10LS	
C	256		CEA470M10L2	
C	257 258		CKSQYB333K50	
C	261		CEA221M10L2	
C	262		CEA101M10L2	
C	351 352		CEA100M16L2	
C	353		CEA4R7M35L2	
C	451 452 467		CEA100M16LS2	
C	453 454		CEA0R1M50LS2	
C	455 456		CEAR47M50LS2	
C	457 458		CKSQYB153K50	
C	459 460		CKSYB393K25	
C	461 462		CEALNP2R2M35	
C	463 464		CEAR22M50L2	
C	468		CEA010M50LS2	
C	469 470		CCSQCH330J50	
C	502		CKSQYB103K50	
C	503	4.7 μ F/16V	CCH1005	
C	551 552		CKSQYB102K50	
C	553 554		CEHAQ4R7M50	
C	555 556		CEHAQ470M25	
C	557 558 559 560		CFTNA224J50	
C	561		CEHAQ220M50	
C	562		CEHAQ101M10	
C	723	470 μ F/16V	CCH-114	
C	901		CEHAQ472M16	
C	902		CKSQYF473Z50	
C	903		CEA102M16L2	
C	911 913	330 μ F/10V	CCH1128	
C	912		CEA101M10LS	
C	921		CCQCH101J50	
C	922		CKSYF473Z50	
C	925		CCSQCH391J50	
C	929		CKSQYB223K50	
C	951 952		CCSQCH100D50	
C	953		CKSQYF473Z50	
C	954		CKSYB473K50	
C	955		CKDYF223Z50	
C	956		CEA331M6R3L2	
C	959		CKSYB223K50	

Unit Number :
Unit Name : Volume P.C.Board

MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC	451		NJM2068D	
Q	457 458		DTC323TK	
Q	459		DTA144TK	
D	461		RD4R7JSB2	

RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	471 472 475 476			RS1/10S123J
R	473 474			RS1/10S332J
R	493			RS1/10S472J

CAPACITORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	471 472			CEA4R7M35LS
C	473 474			CCSQCH101J50
C	475 476			CEA2R2M50LS2
C	478			CEA470M10L2
C	478 (KEH-3400SDK, KEH-2400SDK)			CEHAQ470M25

Unit Number :
Unit Name : SDK P.C.Board(KEH-3400SDK,KEH-2400SDK/WG)

MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC	701			LA2220
IC	702			TA75558S
Q	701 702 705			2SC1740S
Q	703			2SK30A
Q	704			2SA1309A
Q	706			2SC2634NC
Q	708			XDC124ES
D	701			WG713
X	702	Ceramic Resonator		CSS1022
VR	701	Semi-fixed 220 Ω (B)		VRMB6VS221

RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	701 713 719 729			RS1/10S473J
R	702			RS1/10S472J
R	703 704 705 717			RS1/10S104J
R	706			RS1/10S223J
R	707			RS1/10S181J
R	708 710			RS1/10S102J
R	709			RD1/4PS223JL
R	711			RS1/10S271J
R	712			RS1/10S581J
R	714 716 728			RS1/10S103J
R	715			RS1/4PS472JL
R	718			RS1/10S182J
R	720			RS1/10S222J
R	721 725 727			RS1/10S0R0J
R	722			RS1/10S682J
R	723			RD1/4PS152JL
R	724			RD1/4PS153JL
R	726			RS1/10S564J
R	730			RS1/10S823J
R	731			RS1/10S123J

CAPACITORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	701			CKSQYB223K50
C	702 703			CKSQYB391K50
C	704 714			CEA100M16LS2
C	705			CEA220M16LS
C	706 717			CKSQYB222K50

Circuit Symbol & No.	Part Name	Part No.
C 707 713 724		CEA470M16LS
C 708		CCSQSL271J50
C 709		CKSQYB223K50
C 710 711 722		CKSQYB473K50
C 712		CEA010M50LS2
C 715 716		COMA102J50
C 718		COMA683J50
C 719		CEAR33M50LS2
C 720 721		COMA473J50

Unit Number :
Unit Name : Dotby NR P.C.Board(KEH-3400SDK,KEH-3430B)

MISCELLANEOUS

Circuit Symbol & No.	Part Name	Part No.
IC 301		CXA1102P
IC 401		AN8263N
Q 301 401		XDC124ES
Q 303 304		2SC1740S
VR301 302	Semi-fixed 33kΩ(B)	VRMB6HS333

RESISTORS

Circuit Symbol & No.	Part Name	Part No.
R 302		RS1/10S433J
R 303 304		RD1/4PS433JL
R 305 306		RD1/4PS153JL
R 307		RS1/10S473J
R 309		RD1/4PS472JL
R 310		RS1/10S221J
R 311 312		RD1/4PS272JL
R 313 314		RS1/10S332J
R 315 316		RS1/10S104J
R 401 402		RS1/10S822J
R 403		RS1/10S684J
R 404		RS1/10S510J

CAPACITORS

Circuit Symbol & No.	Part Name	Part No.
C 301 302 303 304		CEA4R7M35LS
C 305 306		CEA4R68M50LS2
C 307 308		CEA101M10LS
C 310		CEA100M16LS2
C 311 312		CKSQYB223K50
C 401		CKSQYB103K50
C 402		CCSQCH330J50
C 403		CEA330M10LS
C 404		CEA0R1M50LS2

Unit Number :
Unit Name : Key Board Unit(KEH-3400SDK,KEH-3430B,
KEH-2400SDK,KEH-2430B)

Circuit Symbol & No.	Part Name	Part No.
IL 901 902	Lamp 14V40mA	CEL1013
IL 903	Lamp 14V40mA	CEL1168

Unit Number :
Unit Name : Key Board Unit(KEH-2400B)

Circuit Symbol & No.	Part Name	Part No.
IL 901 902	Lamp 14V40mA	CEL-147
IL 903	Lamp 14V40mA	CEL1167

Unit Number :
Unit Name : P.C.Board(A)

Circuit Symbol & No.	Part Name	Part No.
S 2	Switch(FWD/REV)	ESH1003
D 1	(KEH-3400SDK,KEH-3430B)	1SR-35-100A

Unit Number :
Unit Name : P.C.Board(B)

Circuit Symbol & No.	Part Name	Part No.
S 3	Switch(TAPE/TUN)	ESH1004
S 4	Switch(MUTE)	CSN1005

Miscellaneous Parts List

Circuit Symbol & No.	Part Name	Part No.
S 1	Switch(MUTE)	ESN1005
M 1	Motor Unit	EXA1162
HD 1	Head Unit	EXA1163
SO 1	(KEH-3400SDK,KEH-3430B) Solenoid	EXP1010

KEH-3400SDK

Tuner Amp P.C.Board

	KEH-3400SDK/WG	KEH-2400SDK/WG
Circuit Symbol & No.	Part No.	Part No.
Q402	XDC124ES	.....
Q453,454	2SC1740S	.....
D460	MA700	.....
D956,957	WG713	.....
VR453	CCS1193	CCS1194
R351,352,355	.....	RD1/4PS102JL
R353,354	.....	RD1/4PS153JL
R405	RD1/4PS103JL	.....
R407	RS1/10S0R0J	.....
R489	RS1/10S563J	.....
R491	RS1/10S273J	.....
C351,352	.....	CEA100M16L2
C353	.....	CEA4R7M35L2
C477	CEA100M16LS2	.....

Tuner Amp P.C.Board

	KEH-3430B/EW	KEH-2430B/EW
Circuit Symbol & No.	Part No.	Part No.
Q402	XDC124ES	.....
Q453,454	2SC1740S	.....
D460	MA700	.....
D956,957	WG713	.....
VR453	CCS1193	CCS1194
R351,352,355	.....	RD1/4PS102JL
R353,354	.....	RD1/4PS153JL
R405	RD1/4PS103JL	.....
R407	RS1/10S0R0J	.....
R489	RS1/10S563J	.....
R491	RS1/10S273J	.....
C351,352	.....	CEA100M16L2
C353	.....	CEA4R7M35L2
C477	CEA100M16LS2	.....

Service Manual

PIONEER
The Art of Entertainment

ORDER NO.
CRT1328

CASSETTE MECHANISM ASSEMBLY

CX-197

NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual	Cassette Mechanism Assembly
KE-1700B/IT KE-1700SDK/WG KE-1730B/EW KE-2700B/IT KE-2700SDK/WG KE-2730B/EW	CRT1325	EXK1710
KE-1700OR/UC KE-2303OR/UC KE-2750OR/ES	CRT1327	EXK1710
KE-2033/UC KE-2033/XSG/UC KE-2828/XSG/UC KE-2828/ES, UC	CRT1331	EXK1710
KE-3838/UC, ES KE-3838/XSG/UC KE-3838/XML/UC	CRT1332	EXK1710
KE-1700B/XML/IT	CRT1336	EXK1710
KE-1730B/XIB KE-1730B/XML/EW KE-1730B/XSG/EW	CRT1337	EXK1710
KE-2630B/XIB KE-2730B/XIB	CRT1340	EXK1710

Model	Service Manual	Cassette Mechanism Assembly
KE-1700OR/XML/UC	CRT1339	EXK1710
KE-3700SDK/WG KE-3730B/EW KE-3700B/IT	CRT1326	EXK1720
KE-2700OR/UC KE-3700OR/UC KE-3750OR/ES	CRT1327	EXK1720
KE-4848/ES, UC KE-4848/XML/UC KE-4848/XSG/UC	CRT1330	EXK1720
KE-250/US KE-3033/UC KE-3033/XSG/UC	CRT1332	EXK1720
KE-3730B/XIB	CRT1338	EXK1720
KE-4500R/US	CRT1327	EXK1750
KE-350/US	CRT1330	EXK1750

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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FT JAN. 1991 Printed in Japan

1. DISASSEMBLY

Note: Always use new washer and E washer at the time of reassembling.

● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

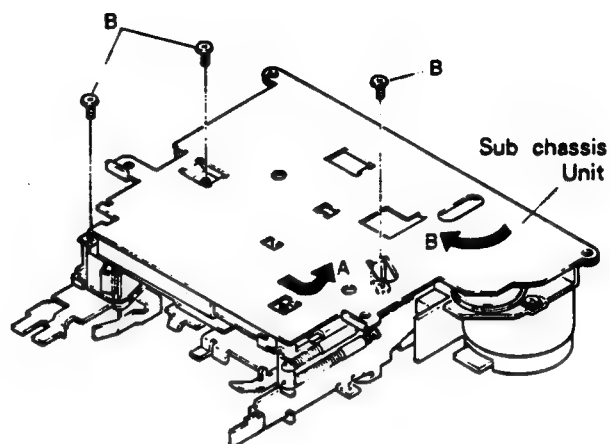


Fig. 2

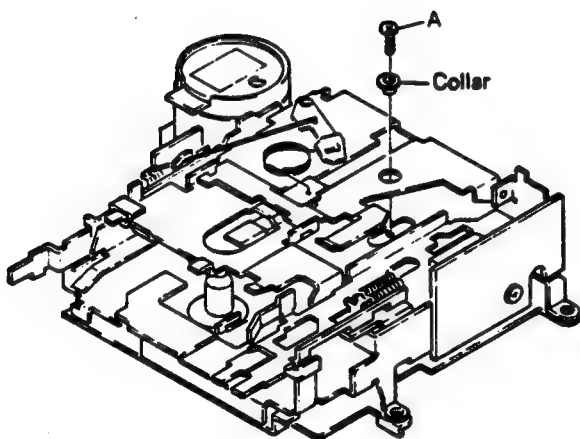


Fig. 1

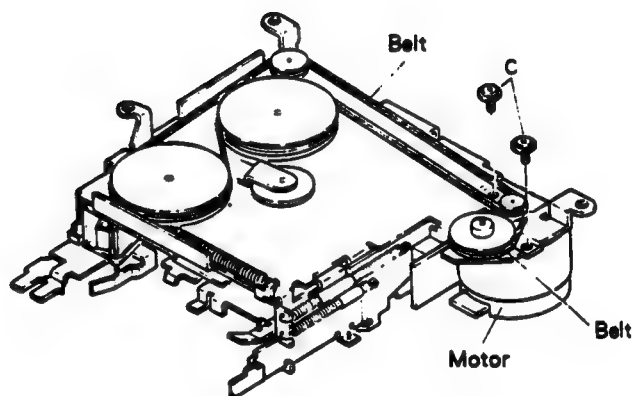


Fig. 3

● How to Remove the Pinch Roller Unit and Head

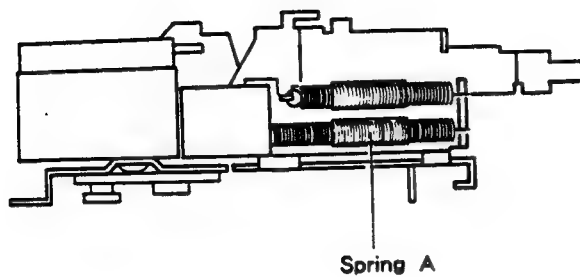


Fig. 4

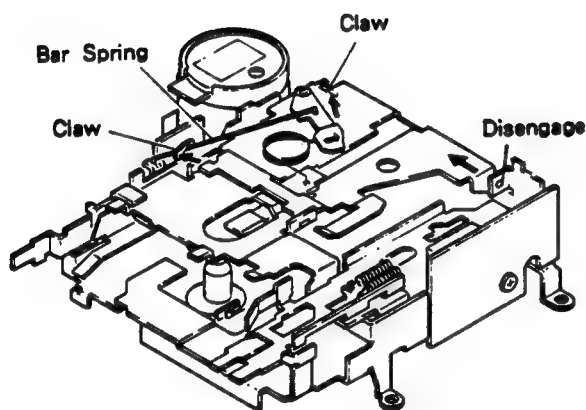


Fig. 5

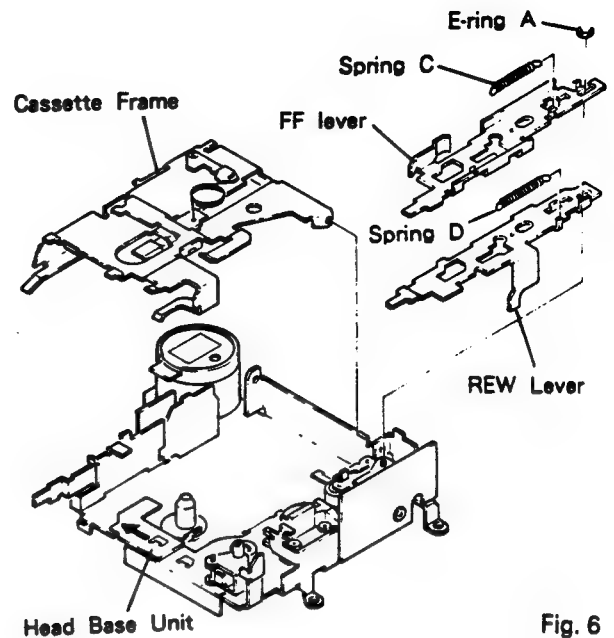


Fig. 6

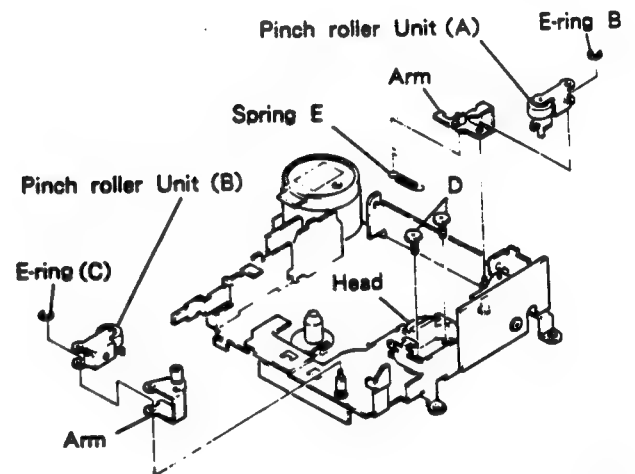


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)

9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

2. ADJUSTMENT

2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation: $3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{ Hz}$ $(4.76 \text{ cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)$</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter: Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time: 100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 35 – 65g · cm</p> <p>Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 2 – 6g · cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force: Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

2.2 AZIMUTH ADJUSTMENT

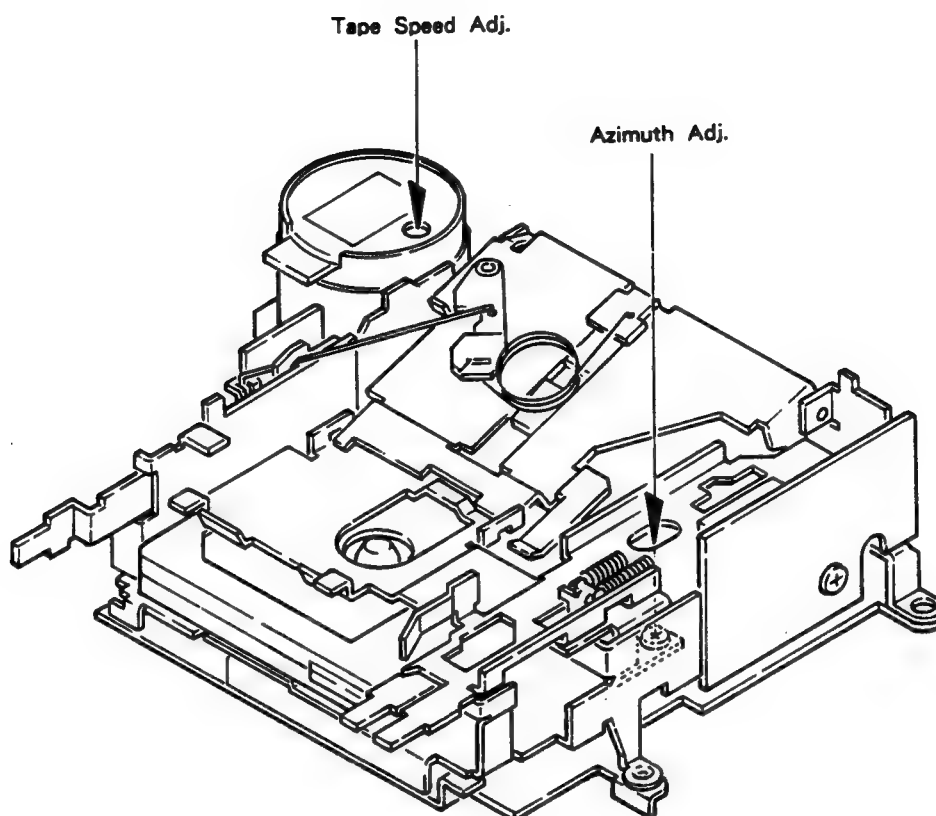


Fig. 8

● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

3. MECHANISM DESCRIPTION

● Loading operation

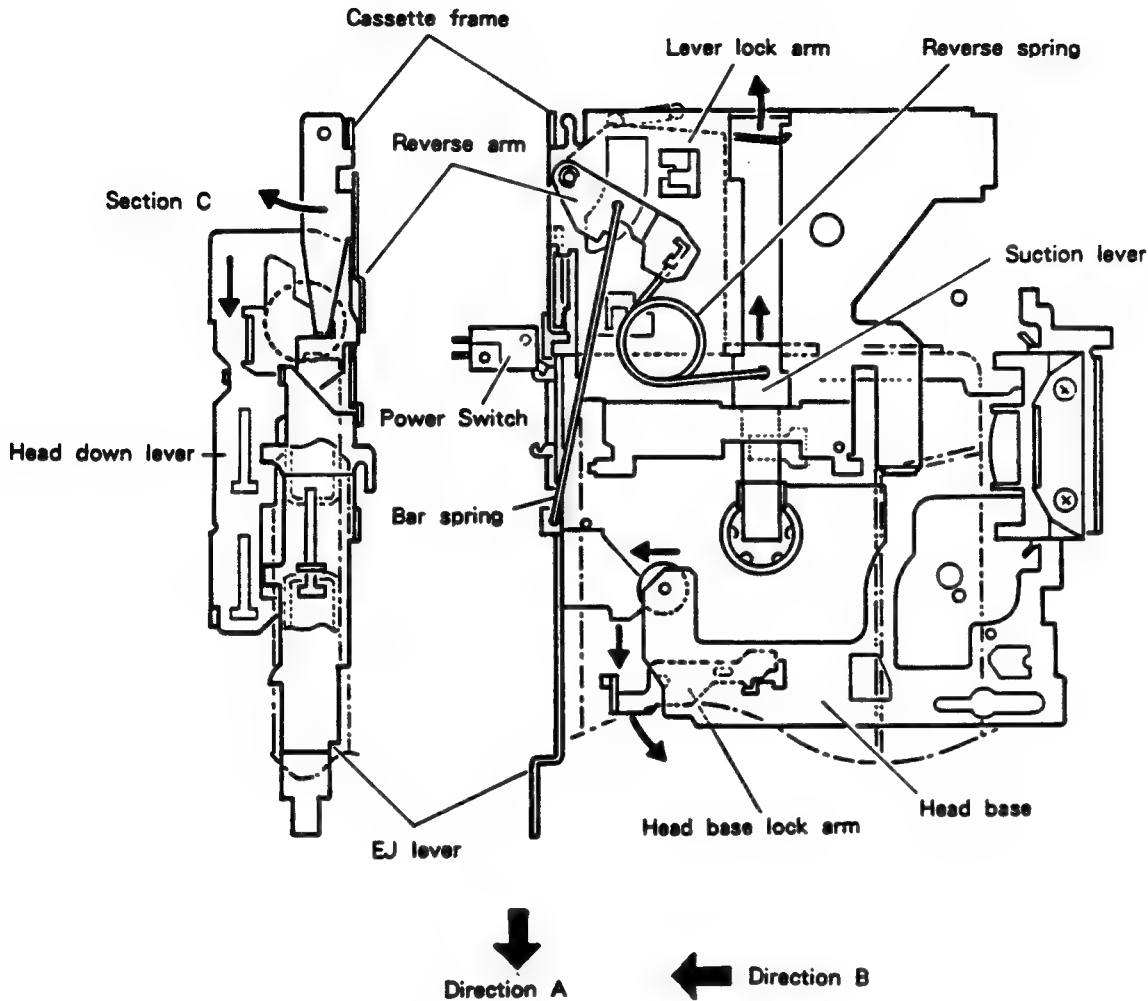


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

● MS Operation (EXK1720, EXK1750)

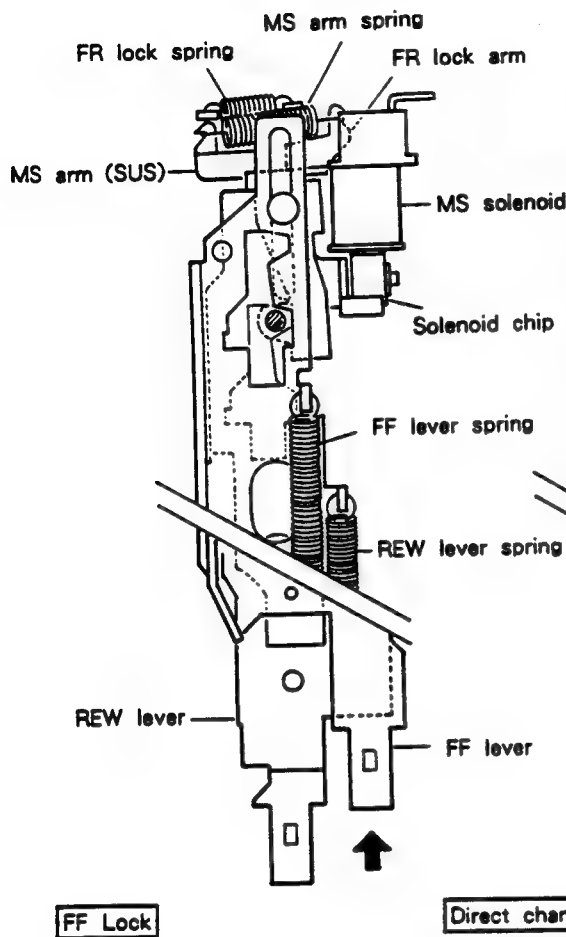


Fig. 10

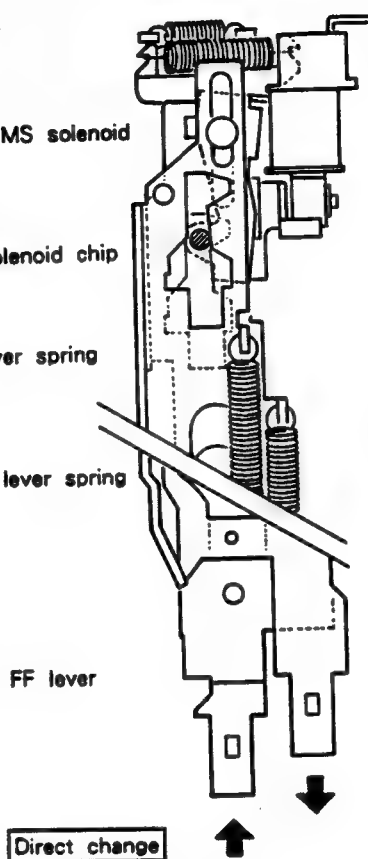


Fig. 11

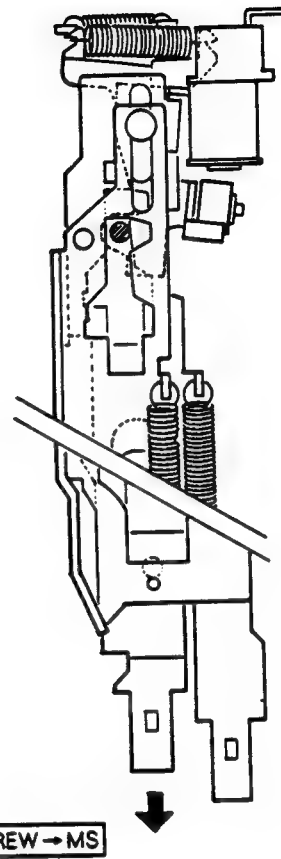


Fig. 12

1. The MS solenoid is normally energized to attract the solenoid chip during play and F/R operation. The solenoid chip applies counterclockwise force to the MS arm, thereby putting the FR lock arm into rotation via the MS arm spring. The MS lock shaft of FR lock arm unit catches a taper in a different hole of the FF (or REW) lever to lock the FF (or REW) lever.
2. In case of direct change, pressing the unlocked FF or REW lever causes the lever taper to turn the FR lock arm clockwise. This in turn presses the MS arm spring and FR lock spring to release the locked lever.
3. When the no recording section is caught and the power supply to the solenoid is cut off, the solenoid loses the attraction force and disables locking of the F/R lever. As a result, the F/R lever is unlocked. (This unlocking occurs because the force to retain the lever cannot be generated by the FR lock spring only.)

● Direction Changeover Operation

(1) FWD play operation

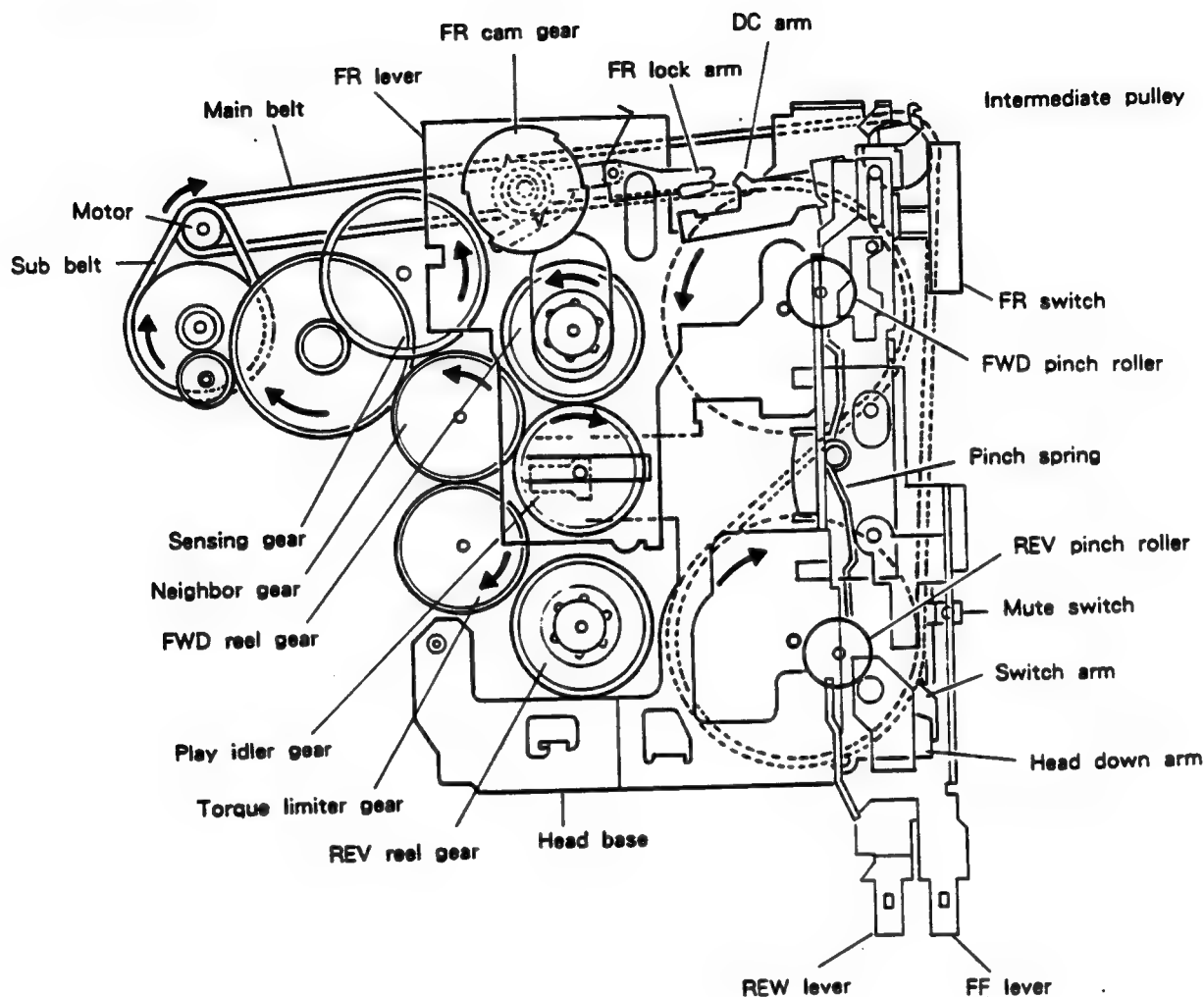


Fig. 13

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

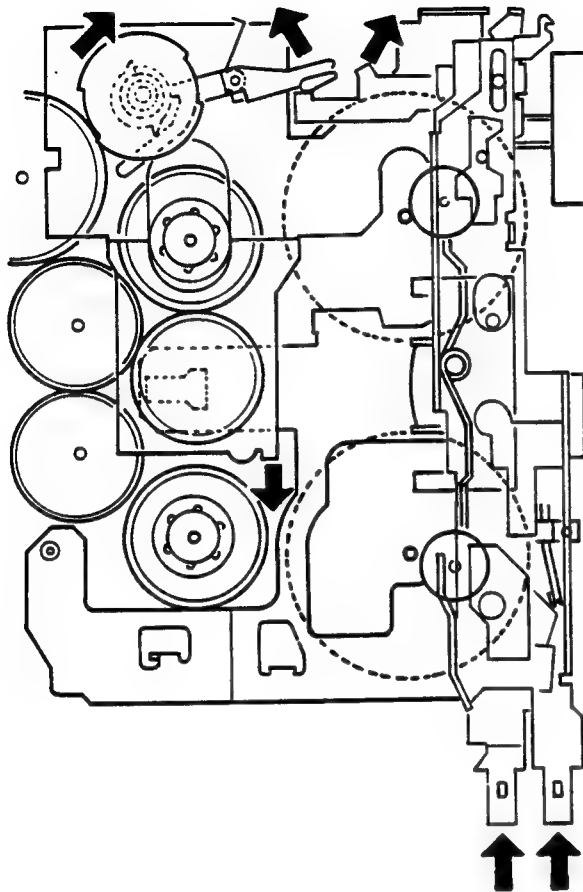
(2) Direction change operation

Fig. 14

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear. As a result, the FR lever moves downward. When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.14)

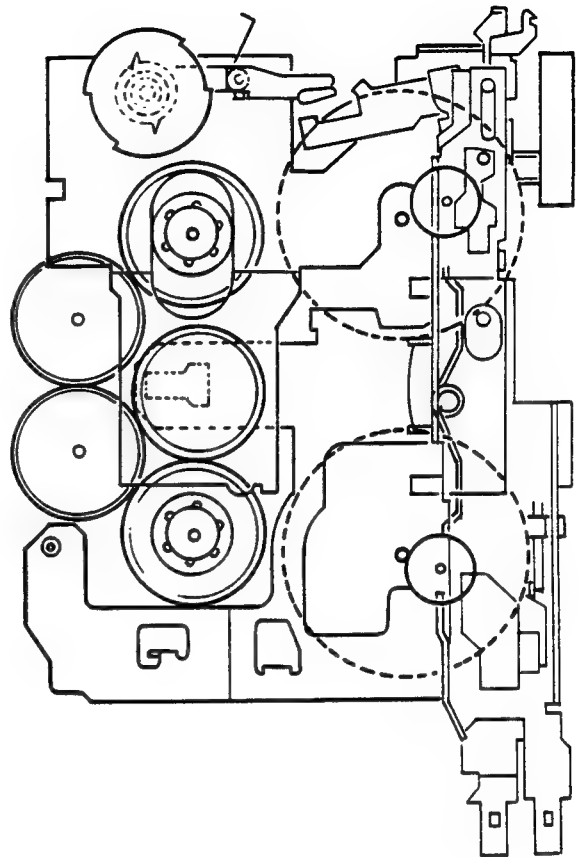
(3) REV play operation

Fig. 15

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● FF/REW Operation

(1) FWD play operation

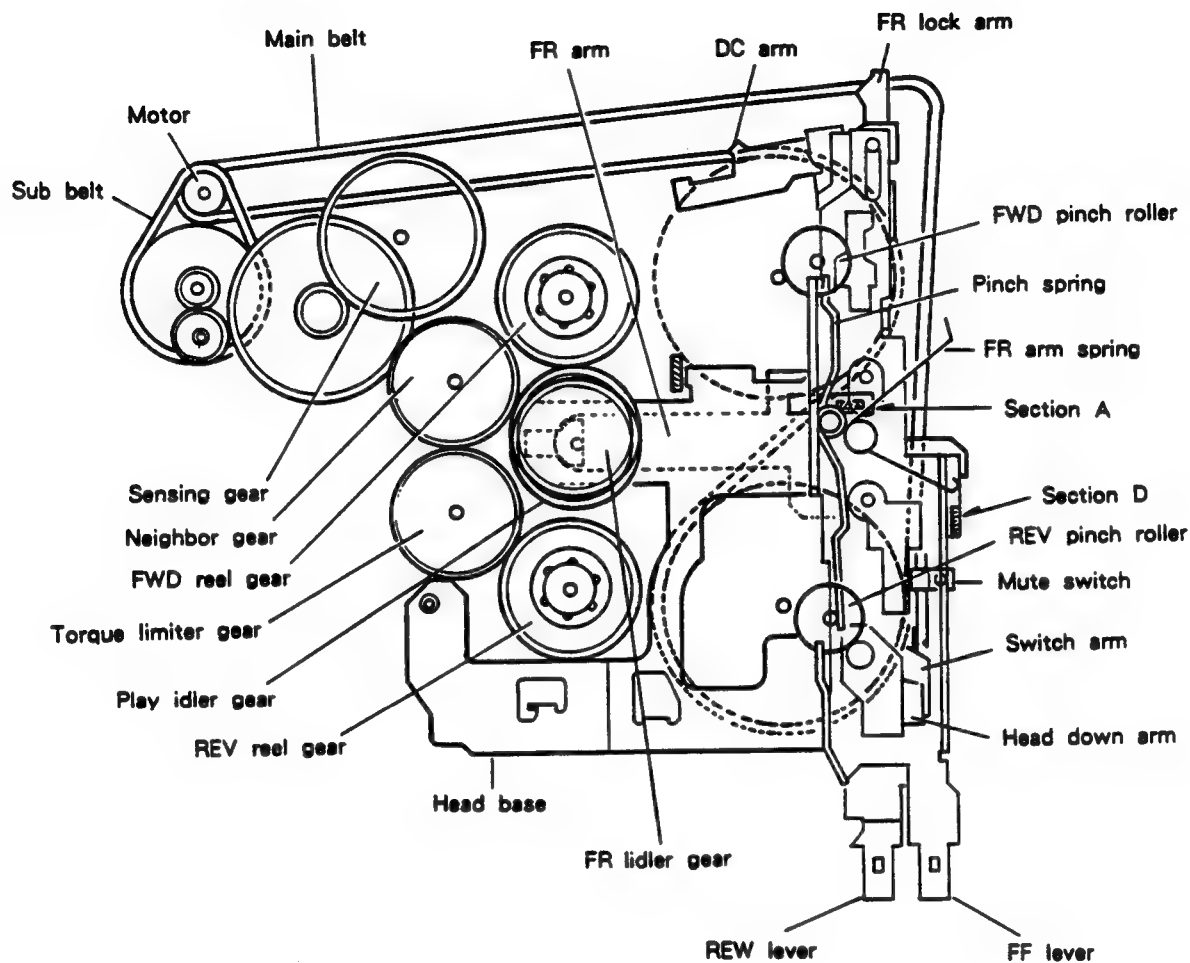


Fig. 16

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

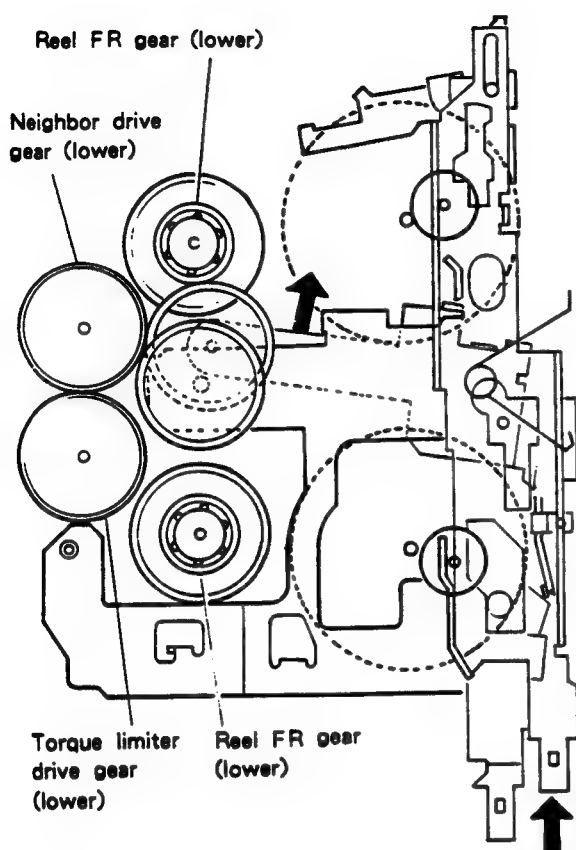
(2) FF Operation

Fig. 17

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.17)

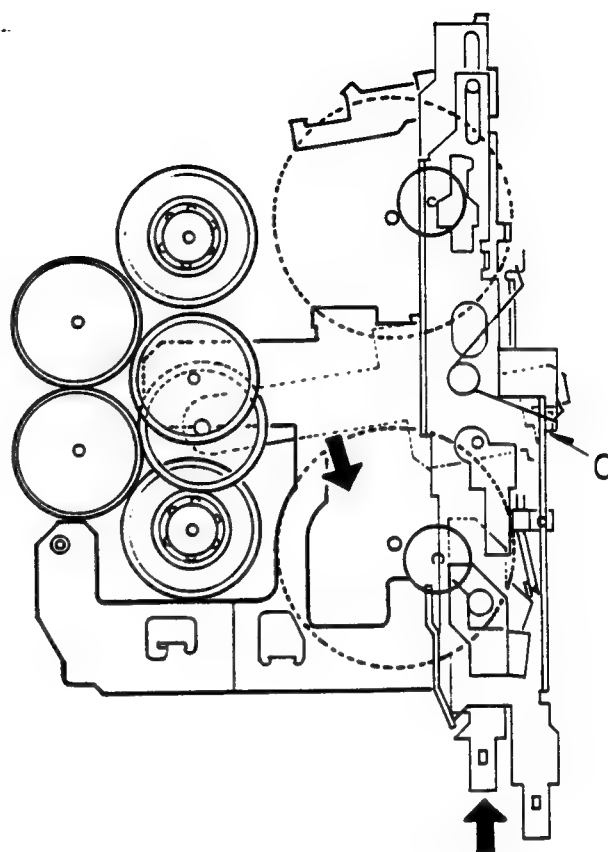
(3) REW operation

Fig. 18

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.18)

● Sensing Operation

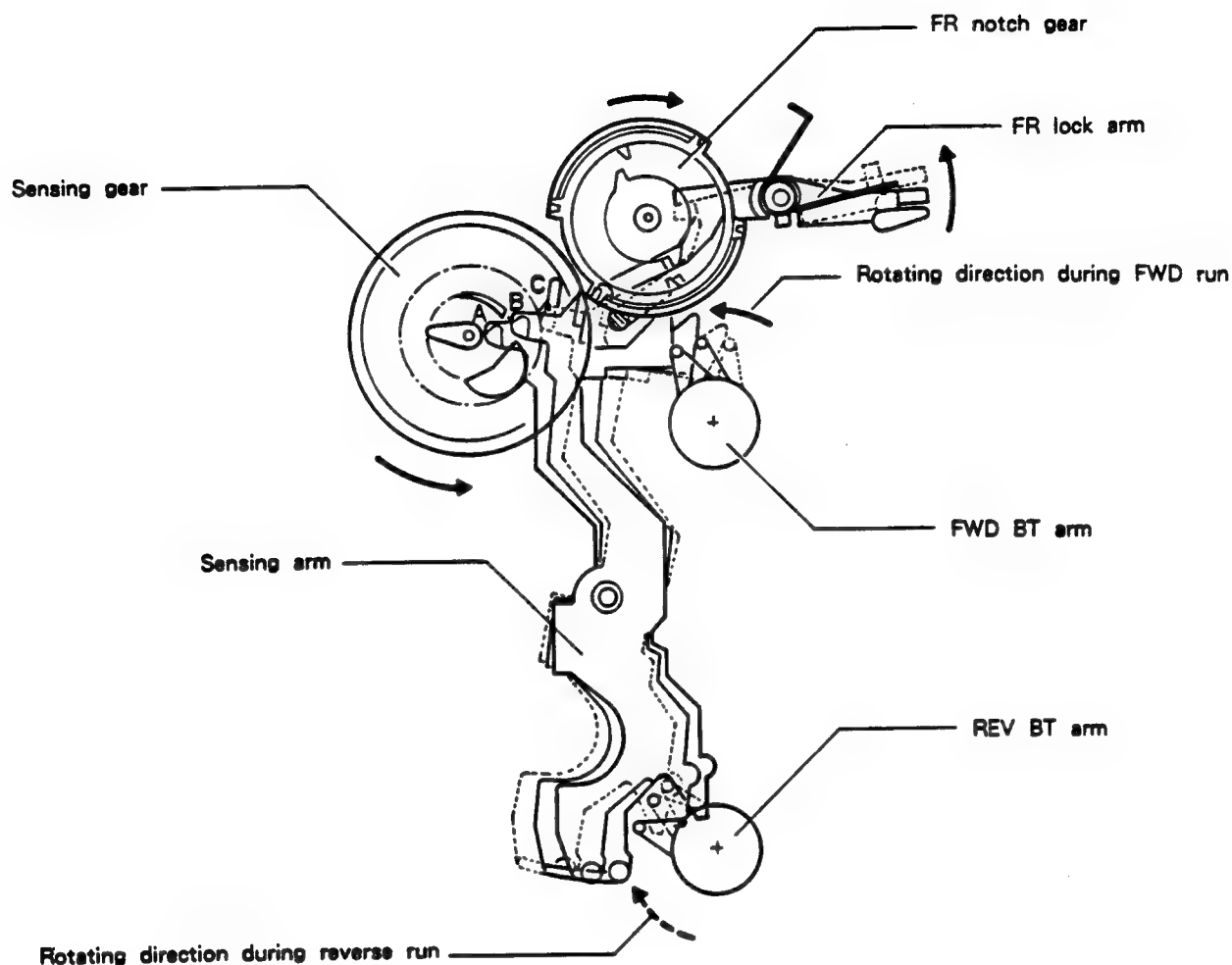


Fig. 19

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.
3. Change of run direction:
The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

ADDITIONAL

Service Manual

PIONEER
The Art of Entertainment

α Jd 3

ORDER NO.
CRT1428

CASSETTE MECHANISM ASSEMBLY

CX-197

NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.
- CX197 (CRT1328) does not have a Key-off function, but the key-off function is shown in this service manual of the CX-197 (CRT1428).

Model	Service Manual	Cassette Mechanism Assembly
KEH-M7400RDS/EW	CRT1429	EXK1735

Model	Service Manual	Cassette Mechanism Assembly

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
 © **PIONEER ELECTRONIC CORPORATION 1991**

FU DEC. 1991 Printed in Japan

1. DISASSEMBLY

Note: Always use new washer and E washer at the time of reassembling.

● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

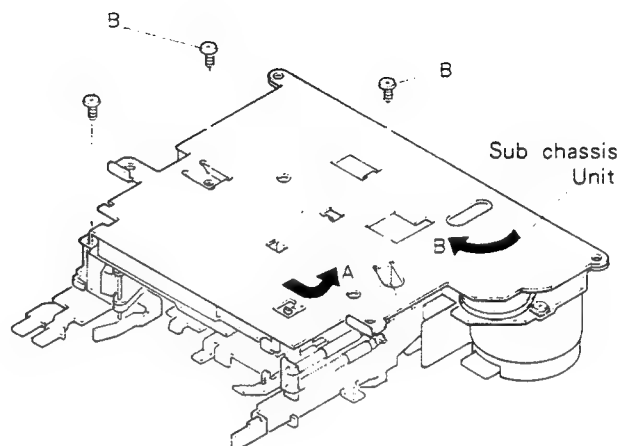


Fig. 2

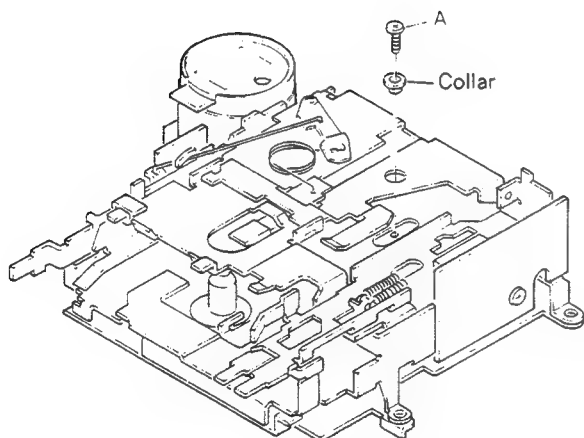


Fig. 1

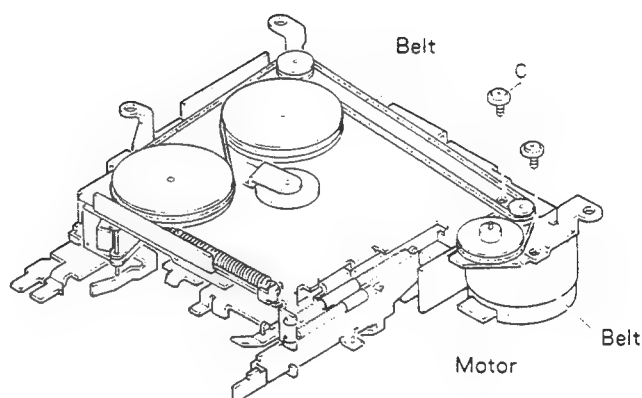
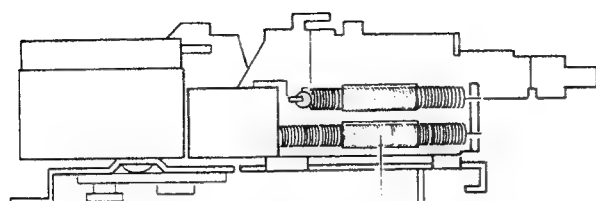


Fig. 3

● How to Remove the Pinch Roller Unit and Head



Spring A

Fig. 4

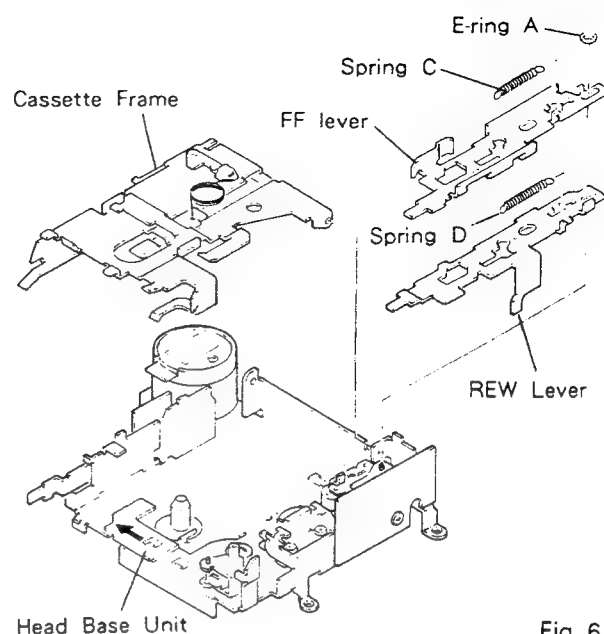


Fig. 6

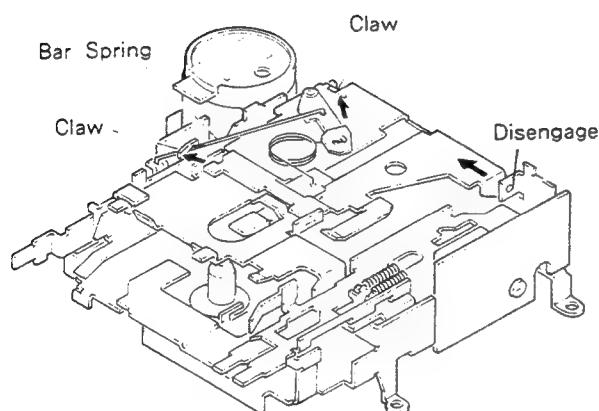


Fig. 5

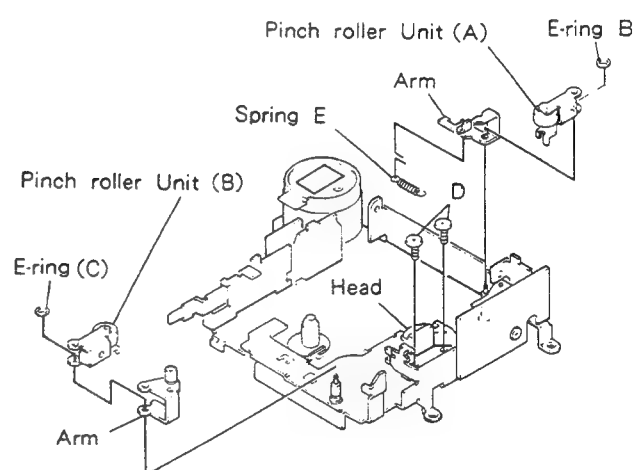


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)
9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

2. ADJUSTMENT

2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation: $3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{ Hz}$ $(4.76 \text{ cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)$</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter: Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time: 100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 35 – 65g • cm</p> <p>Using a cassette type torque meter (100 g•cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque: 70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: 70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 2 – 6g • cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force: Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

2.2 AZIMUTH ADJUSTMENT

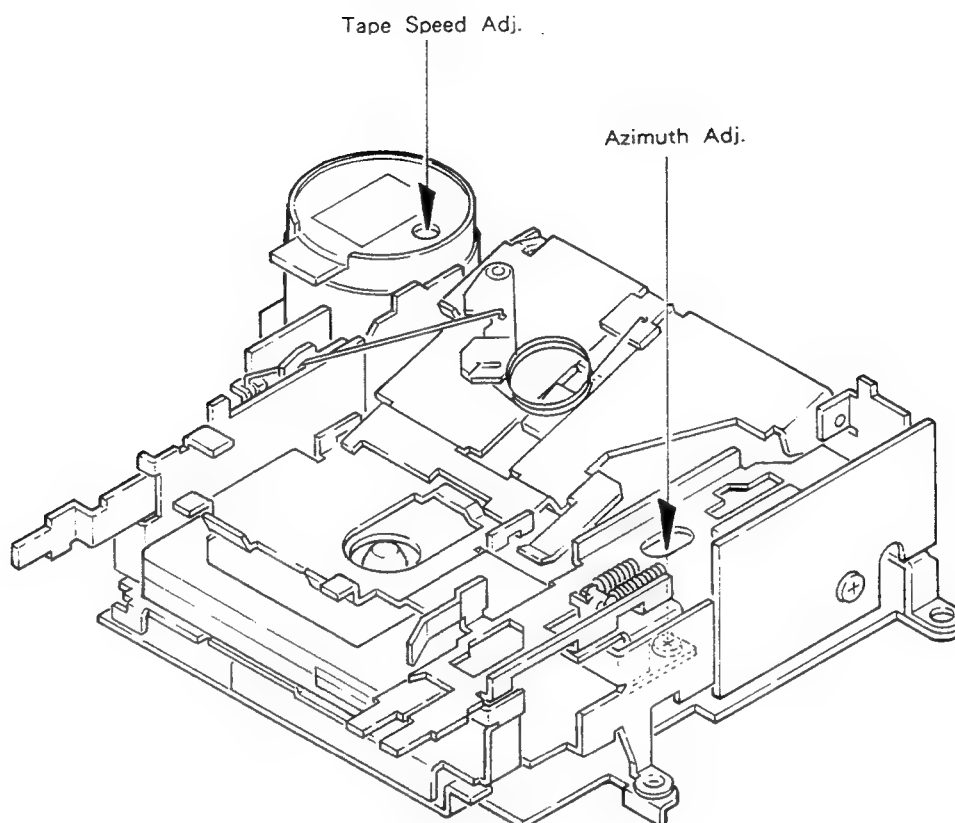


Fig. 8

● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

3. MECHANISM DESCRIPTION

● Loading operation

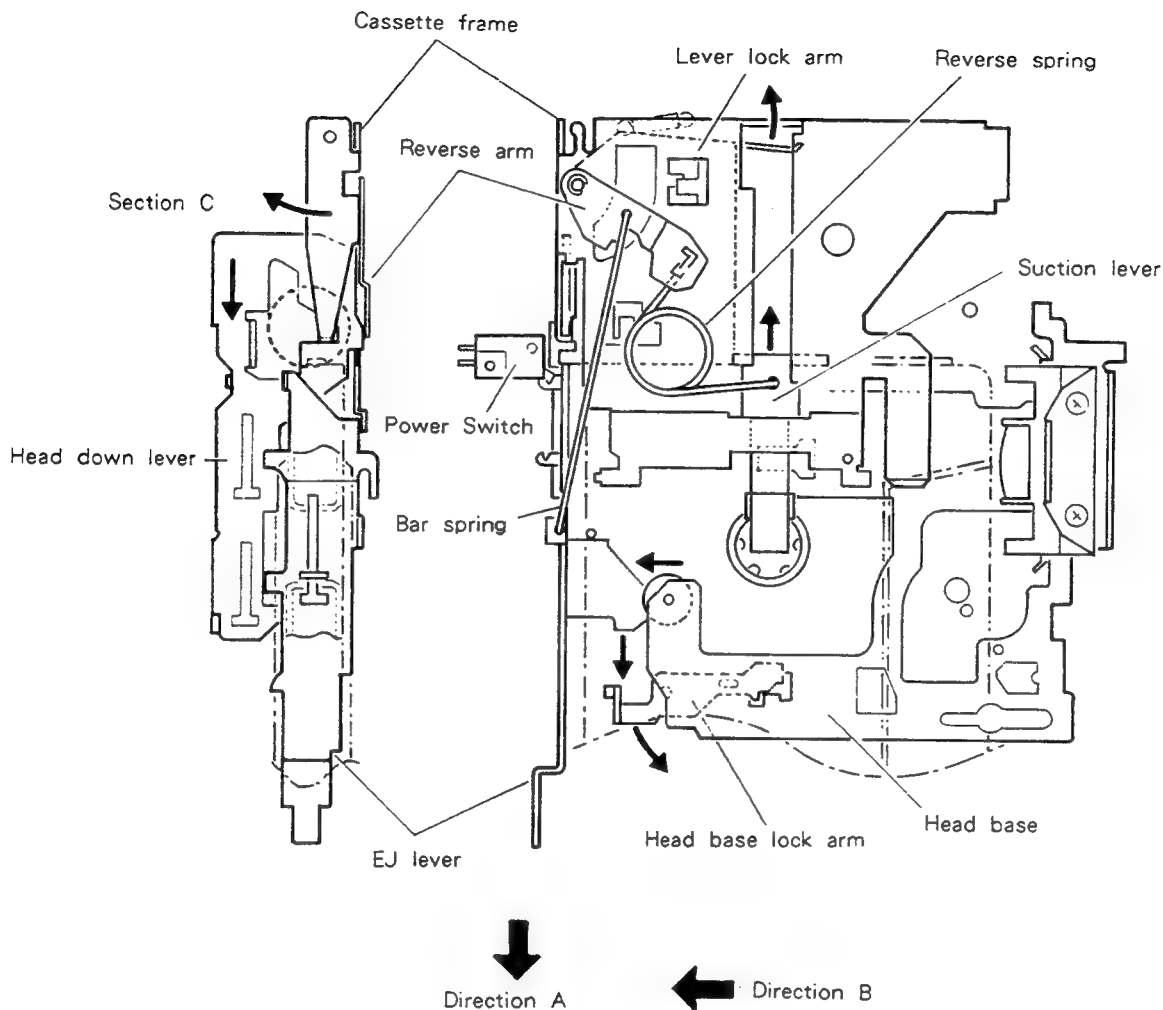


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

● MS Operation

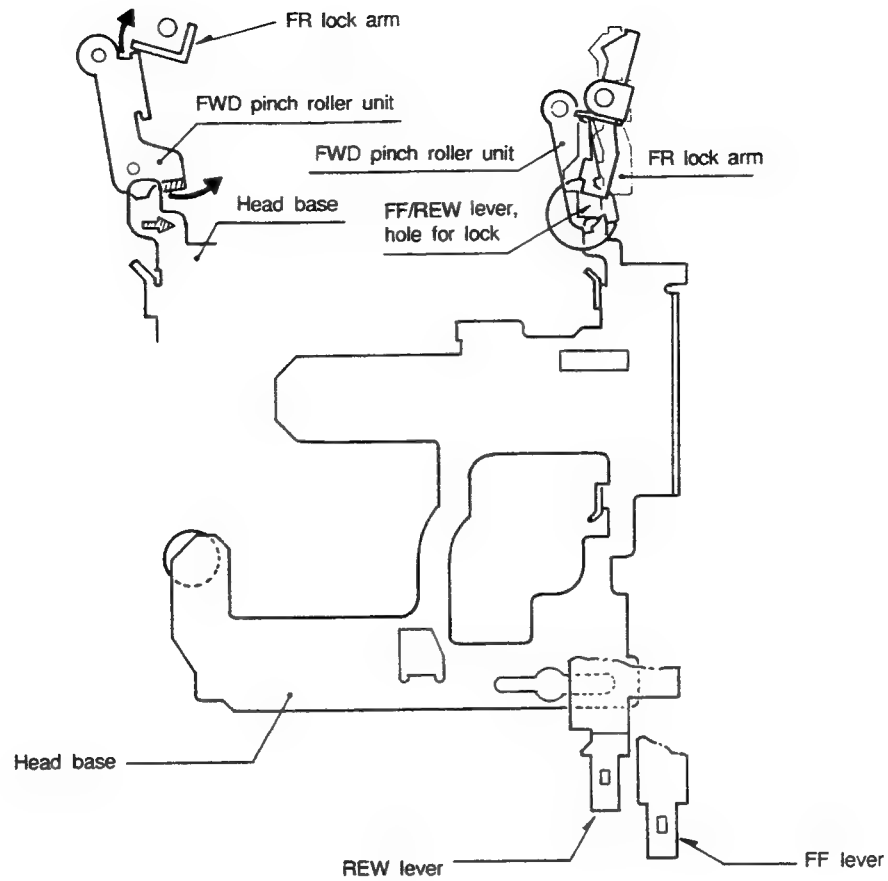


Fig. 10

The head base is moved back by switching the key-off solenoid off from the REW or FF condition, and is lowered (rotated) FWD pinch roller unit. The FWD pinch roller unit presses the bending part of FR lock arm to make it rotate in the direction that releases the lock. The lock of the FF/REW lever is consequently released. Subsequently, the head comes out from the ATSC to enable PLAY condition.

(2) Direction change operation

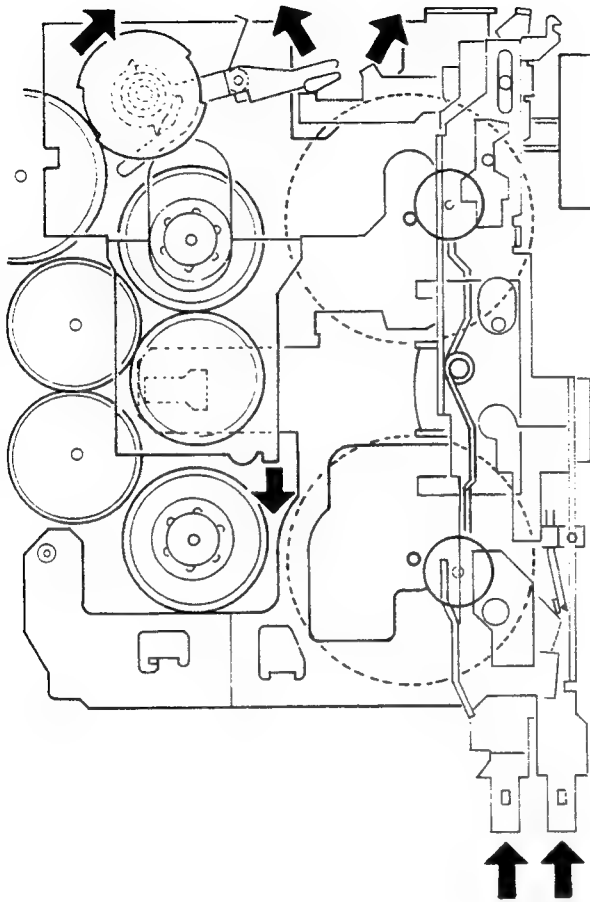


Fig. 12

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear.

As a result, the FR lever moves downward.

When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.12)

(3) REV play operation

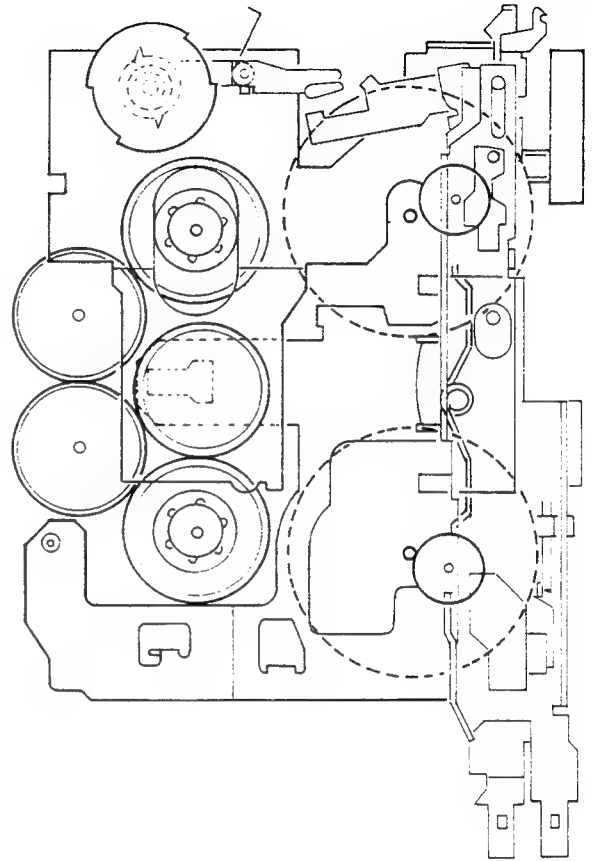


Fig. 13

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● FF/REW Operation

(1) FWD play operation

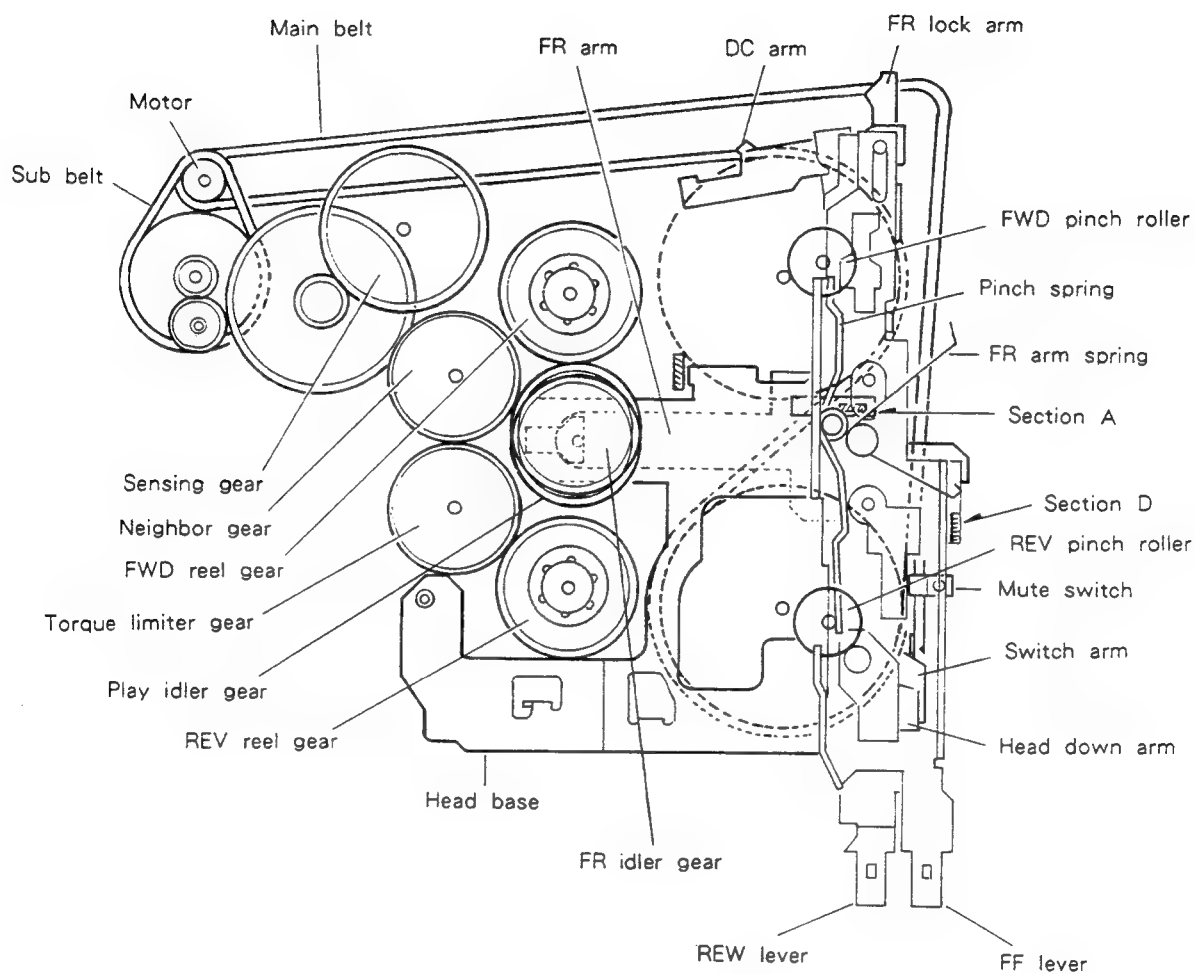


Fig. 14

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

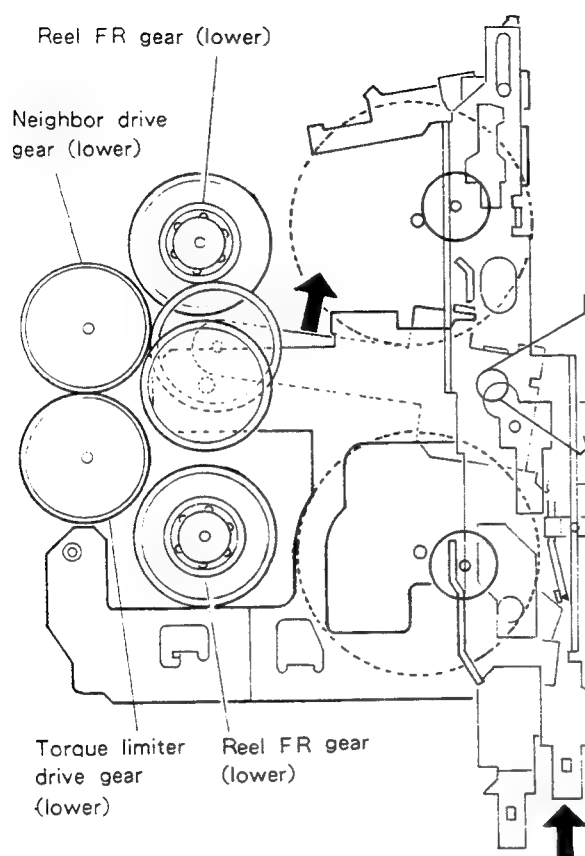
(2) FF Operation

Fig. 15

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.15)

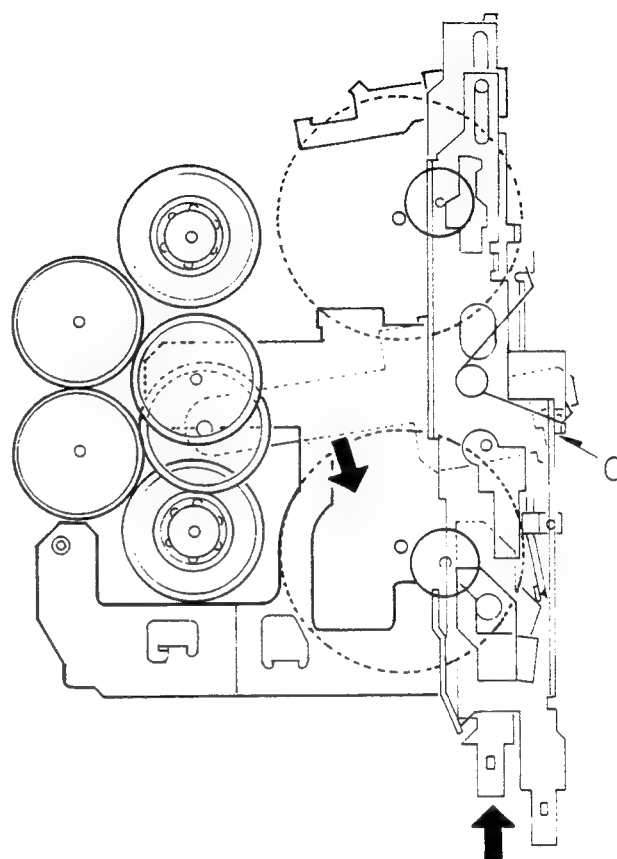
(3) REW operation

Fig. 16

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.16)

● Sensing Operation

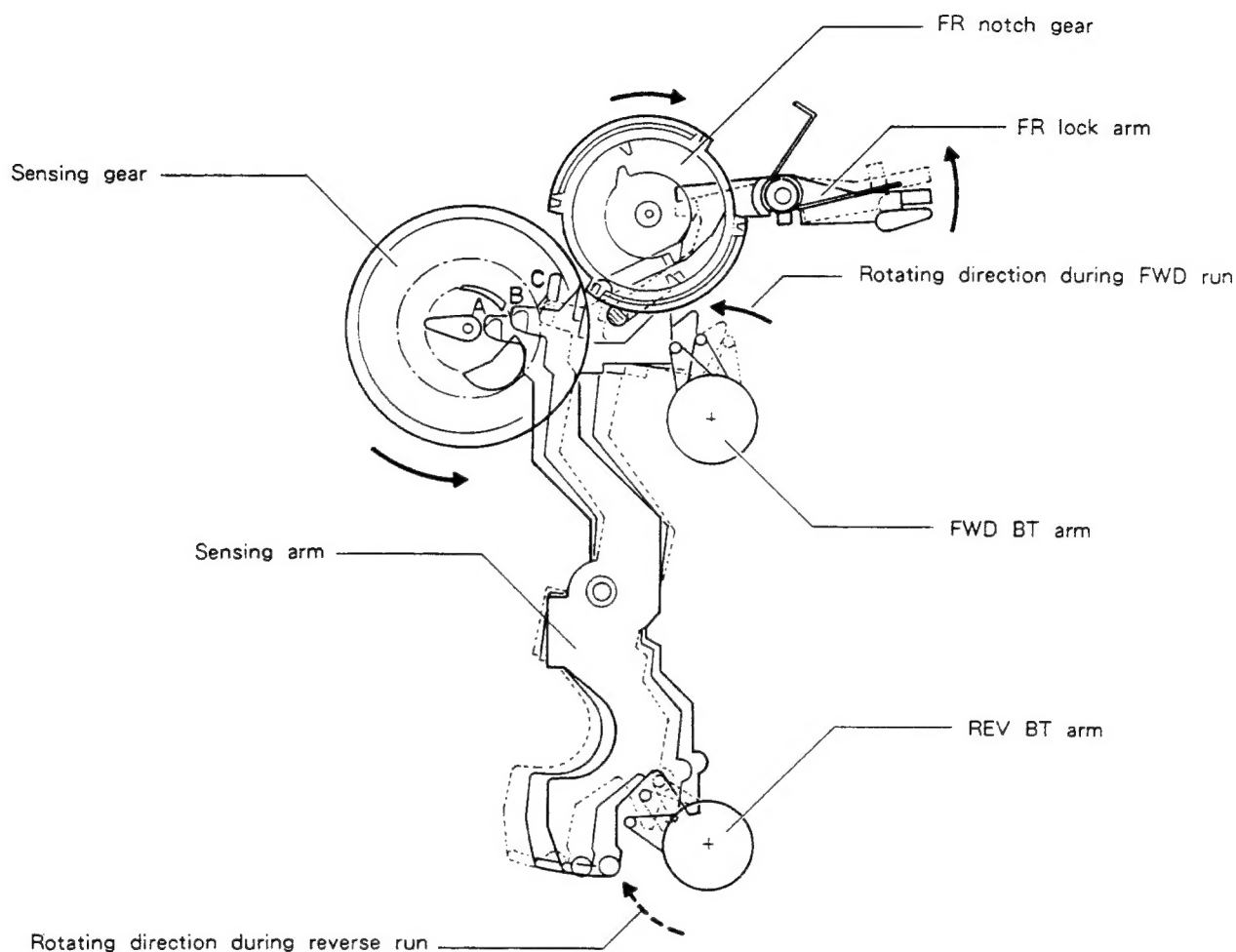


Fig. 17

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.
3. Change of run direction: The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

● ATSC Operation

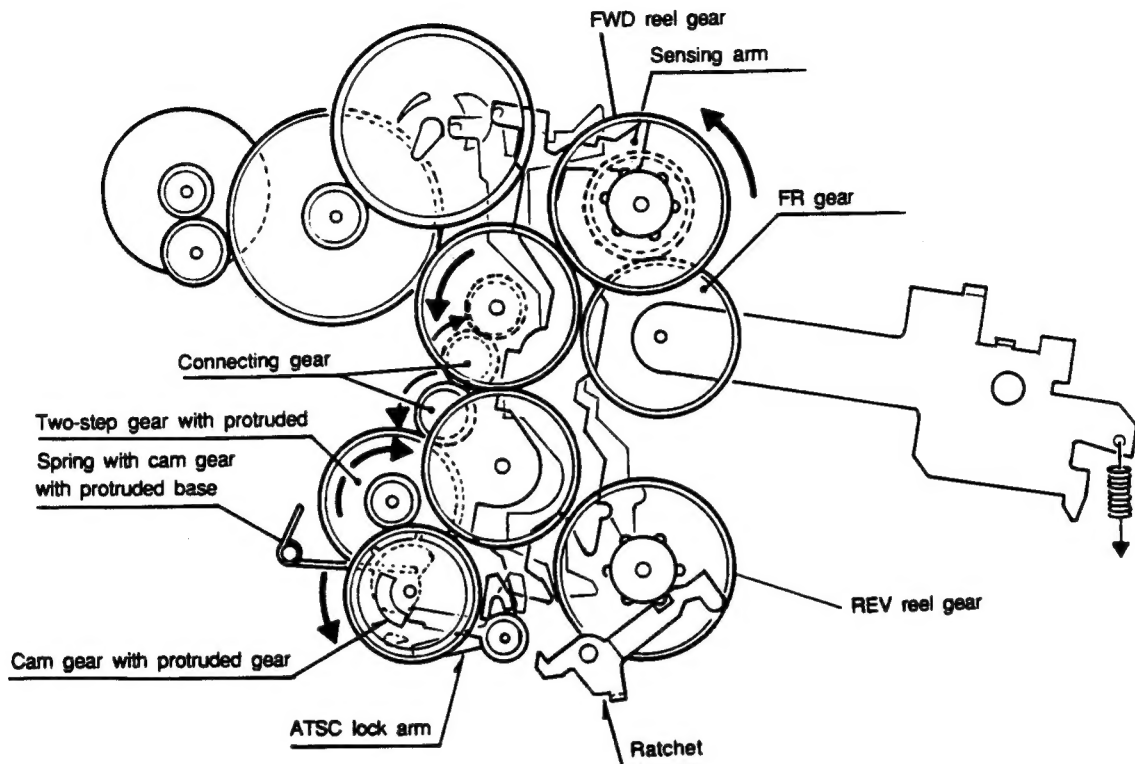
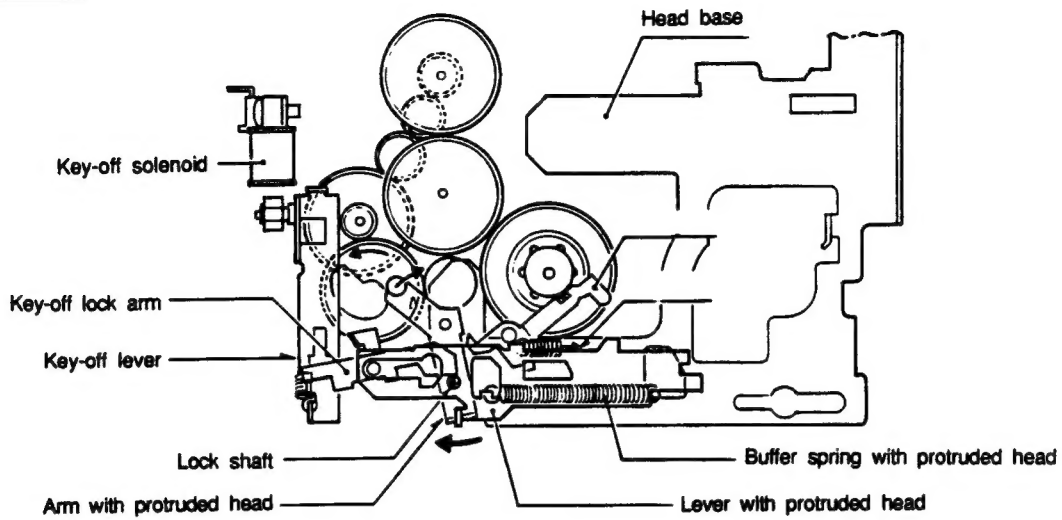


Fig. 18

1. At the position for releasing the head table, the FR gear is meshed with the FWD reel gear. Because the ratchet in the REV reel gear stops rotating, the tape must be wound up until no slack exist.
2. Because the rotation stops when no slack exists in the tape, sensing is performed. The sensing arm presses the ATSC lock arm, and the lock of the cam gear with protruded head gets out of position. Then, the cam gear is made to rotate.

● Key-off Operation

Release Condition



Play Condition

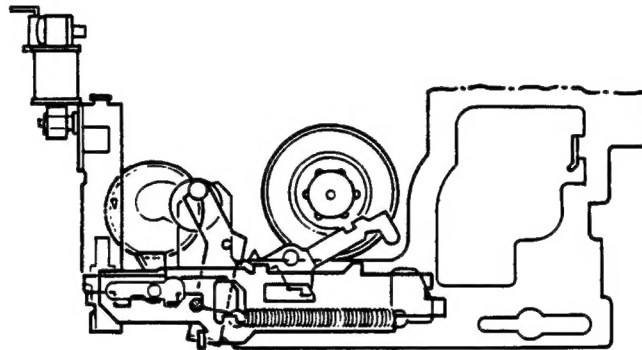


Fig. 19

1. Thrusting head: The arm with protruded head is rotated by the rotation of the cam gear with protruded head, and the lever with protruded head is pushed out. Because the lever with the protruded head and head base are connected by the buffer spring with protruded head, the head base moves forward.

2. Lock for head base:

When the lever with protruded head moves forward, the lock shaft caulked by the lever with protruded head shifts. Thus, the key-off lock arm can rotate, and the key-off lever reaches the key-off solenoid

by force of a spring, and becomes attached. (Although escape power works on the key-off lock arm by force of the head return spring, the solenoid maintains it.)

3. Key-off:

The key-off lock arm is rotated by the power of the head return spring when the key-off solenoid is switched off, and the lever with protruded head and head base move back together.

● EJECT Operation

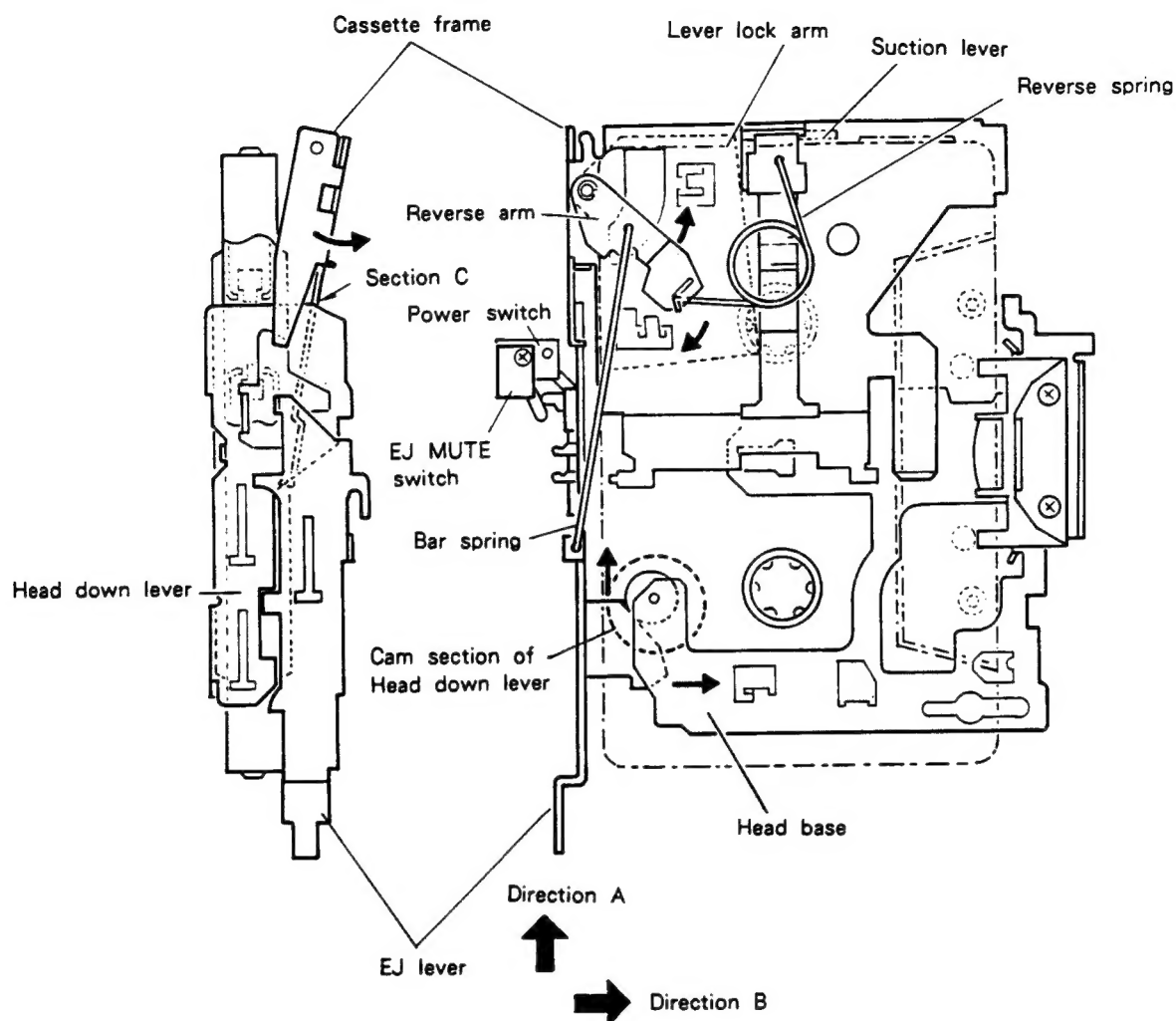


Fig. 20

1. Push the EJ lever in Direction A by hand (EJ MUTE SW ON) At the same time, the head down lever slides in Direction A.
2. The cam section of the head down lever returns the head base in Direction B (head base down operation).
3. Section C of the cassette frame is pushed up by the stroke of the head down lever (push-up operation).
4. The reverse arm is driven in a direction of arrow mark via bar spring by the EJ lever stroke.
5. The reverse spring passes through the reverse position to eject the cassette tape (eject operation).
6. With the EJ lever over-stroking, the lever lock arm can be rotated and locks the head down lever.
7. When released, the EJ lever returns and is stopped by the head down lever.